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AUTHOR Rasler, Michael Lorence
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ABSTRACT

The purpose of this study was to create a multi-tech distance learning program (MTDLP) for Folsom Lake College (California) with special emphasis on the teaching of health science. The research followed the developmental problem-solving methodology. Data were obtained from several sources: a review of the literature; a review of established distance learning programs from postsecondary institutions; and interviews of practitioners involved in distance learning. The development of the MTDLP was complex and required careful consideration of the following key issues: the identification of the MTDLP; selection and training of faculty; adapting traditional health science curricula; ensuring optimum faculty/student interaction; support services; and technology and its implied costs. The MTDLP developed in the this study was based on the Rio Salado Community College (RSCC) model in Phoenix (Arizona). The MTDLP developed for Folsom Lake College contained recommendations for support services; registrations procedures; orientation programs; counseling programs; student access to course materials; and course/instructor evaluation forms. Included in the appendixes are the interview questions; summary of interviews; and the final draft of the MTDLP. (Contains 61 references.) (Author/JLB)

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A MULTI-TECH DISTANCE LEARNING PROGRAM: A MODEL FOR FOLSOM LAKE COLLEGE WITH EMPHASIS ON TEACHING HEALTH SCIENCE

by

Michael Lorence Rasler

A Major Applied Research Project presented in partial fulfillment of the requirements for the degree of Doctor of Education

Nova Southeastern University

June, 1994

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The educational achievement manifested by this document was a collaborative effort of significant people in my life.

I am reminded of the scripture which says: "I do nothing out of my own initiative, but everything I do comes from my father." The significant people who have shaped me are many, but must begin with my parents Joseph Robert and Margaret Alberta Rasler, who always stressed the importance of education and how correct they were!

To my wife, Carol who truly is the most benevolent and altruistic person I have ever known. Her assistance was invaluable! I dedicate this degree to my wife.

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Abstract of a Major Applied Research Project Presented
to Nova University in Partial Fulfillment of the
Requirements for the Degree of
Doctor of Education

A MULTI-TECH DISTANCE LEARNING PROGRAM: A MODEL
FOR FOLSOM LAKE COLLEGE WITH EMPHASIS
ON TEACHING HEALTH SCIENCE

by

Michael L. Rasler

June, 1994

There are many challenges in higher education. Some of these challenges include (a) expanding the reach, (b) the quality, and (c) the effectiveness of instruction within a context of dwindling resources. In response to these challenges, a growing number of institutions are turning to the use of distance learning as a way to reach more students and to address a broader range of instructional goals.

The purpose of the study was to create a multi-tech distance learning program (MTDLP) for Folsom Lake College (FLC) with special emphasis on the teaching of health science. The need for this project was generated by the decision of the Los Rios Community

College District (LRCCD) in collaboration with the California Post-Secondary Education Commission (CPEC) to approve the construction of the 108th community college in California. This project was also undertaken in order to further the goals stated in the Los Rios Community College District Strategic Plan, 1992-1995.

The basic research questions that were addressed include the following; What has been learned in the literature about multi-tech distance learning? What multi-tech model should be adopted to guide the development of the MTDLP? How should faculty be selected and trained? How should the health science program be adapted and administered? What means of communication should be utilized to ensure optimum student faculty interaction? How will the MTDLP be evaluated? What are the estimated costs?

The research followed the developmental problem solving methodology. The MTDLC was developed according to the following procedures. A review of the literature was conducted to provide a sound foundation for the study. Consultations and interviews were held with professionals who are involved in distance learning. The input of these experts was incorporated into the final draft of the MTDLP.

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Chapter 1

INTRODUCTION

The world is developing into a global society. This society, which includes higher education, will be challenged with processing and disseminating large amounts of information.

Higher education will continue to contend with an accelerated rate of change accompanied with rapid changes in technology. This will produce concomitant pressures for colleges to keep pace and will touch every departmental area (Cradler, 1993).

These pressures transcend into related challenges in higher education that include expanding the (a) reach, (b) quality, and (c) effectiveness of instruction within a context of dwindling resources.

In response to these challenges, a growing number of institutions are turning to the use of telecommunications technologies--specifically distance learning (DL), as a way to reach more students and to address a broader range of instructional goals (Johnstone, 1992). The operational definition of distance learning for the purposes of this study was the instructional delivery system allowing faculty and students to be in different locations at the same time

for the purpose of providing instruction to a widely dispersed student audience.

However, the history of higher education in the United States has been one with a strong emphasis on the lecture or oral aspects of communication. Consequently, the role of DL has met with some resistance. Many faculty think that DL must be inferior. Thus, there is a reluctance of some to see DL as an effective alternative learning modality (Hattie, 1990).

Statement of the Problem

The problem addressed in this study was the need to develop a multi-tech distance learning program (MTDLP) in order to bring LRCCD's strategic goals for a non-traditional mission for FLC to fruition. A MTDLP was developed to initiate the transition process from the current traditional course offerings to a non-traditional format with a focus on health science curriculum.

The MTDLP will be committed to using technology in order to meet the changing world, bringing with it a new cadre of student needs. Since health science is a course taught throughout the LRCCD, the MTDLP represented the first concrete attempt to develop a

MTDLP that will offer student choices of the course format for the teaching of health science at FLC.

Background and Significance

The Los Rios Community College District (LRCCD) has stressed its continued commitment to the use of technology due to its role in the work place. The LRCCD's strategic plan (1992) has produced nine goals to pursue. One of its institutional goals and objectives include the following:

Goal 2. "Provide a meaningful, quality program of instruction to meet the transfer, general, occupational developmental education needs of the community" (p. 25).

Objective 2.5. "Continue to develop innovative teaching methodologies and continue to broaden college instructional delivery systems through technology" (p. 25).

In concert with this direction, the LRCCD chancellor's vision statement includes a five point concept of diversity. It is Statement Number 5 which pledges a commitment to the following:

Statement Number 5. "Diversity in methods of instruction to guarantee access for all and provide alternatives for teaching and learning" (p. 25).

LRCCD serves a diverse area of densely populated metropolitan communities, agricultural areas, national forest lands, and state park regions encompassing 2,400 square miles in all of Sacramento and parts of El Dorado, Yolo, Placer and Solano counties.

LRCCD is the third largest district in the state of California in credit enrollments, with 52,918 students. In addition to the more than 52,000 students in general education and transfer curriculum, over 20,000 community members are enrolled in non-credit, continuing education and community service classes on a fee basis. The LRCCD also offers 76 two-year vocational programs and 63 technical certificated programs. The largest single group represented is 18-20 year old students, followed by the 30-39 year old group. The district has seen its largest gender increase in female students who represent 53% of its student body and the ratio of daytime to evening students is 60% to 40%, respectively.

The state of California, in the spring of 1993, opened its 108th community college in Folsom, California, which is the fourth college to join the LRCCD. The mission of Folsom Lake College (FLC) will be to pursue non-traditional instructional formats. FLC's first semester (Spring, 1993) offered general,

continuing, and vocational education courses primarily during evening hours and on Saturdays. The actual enrollment (Spring, 1993) for FLC was 1,400 comprised primarily of evening students (90%). It is projected that the day to evening ratio will approach 50:50 by 1997 and a 40:60 ratio by the year 2000. It is the vision of the LRCCD to develop a non-traditional learning program for FLC (LRCCD, 1992).

Computer and video technologies have become standard features of some college and university operations. A wide variety of new electronic technology is currently being introduced throughout the educational community and include: (a) internet, (b) interactive computers, (c) cd-rom, (d) electronic mail, (e) computer conferencing, and (f) video disc.

Large scale electronic databases, local area networks, and wide area networks will be linked by telephone, microwave, fiber-optics, and satellite technology to make technology more accessible throughout the 1990s (Burnett, 1992).

A multi-tech distance learning program (MTDLP) is becoming necessary in order to integrate technology and learning (Johnstone, 1992). Also, integrated video and computer systems allow faculty the opportunity to use a wide range of alternatives in their teaching

methodologies to provide information in a manner other than the traditional lecture style delivery system (Deegan and Tillery, 1985).

Consequently, the development of a MTDLP for FLC accomplished not only the integration of new technologies, but is offered a new model or paradigm accommodating varying student needs.

Health science is an undergraduate elective course taught in the LRCCD. The course is required to partially fulfill the general education requirement for transfer students. The course was selected because some seminal curriculum has been developed in creating an alternative learning format.

The MTDLP also presented another option for students who generally desired to participate in higher education, or specifically in health science curriculum, but because of their personal circumstances have not been able to enroll in the course.

Time constraints, family responsibilities, and professional obligations preclude some students from pursuing education in the traditional setting. MacFarland (1990) refers to such students as the new professionals.

The LRCCD further believes that the electronic classroom environment will make it possible for

students to receive multi-tech instruction in harmony with their personal needs. To make it possible for class schedules to remain flexible, technology included, but was not limited to: (a) personal computers/E-mail, for conducting conferences; (b) audio/video tapes, to be listened to and viewed at the discretion of the student; (c) telephone, for the clarification of course materials; (d) print materials, for easy reference; and (e) fax machines, for a more prompt turnaround time for student needs. These technologies enhanced the traditional classroom instruction and added flexibility between the instructor and the student. A MTDLP was not the total answer to the economic, demographic, educational and technological changes confronting higher education. However, according to Lionel V. Baldwin (1991) changing demographics demand that colleges consider how the classroom of tomorrow should be constructed to meet these challenges.

Research Questions

Higher education stands at an important crossroads. Economic, demographic, educational, and technological changes demand that colleges reconsider what they will teach, how they will teach, and whom they will teach.

In developing a MTDLP for FLC, these research questions were examined:

1. What has been learned in the literature review from other institutions about multi-tech distance learning?

2. What multi-tech model should be adopted to guide the development of the MTDLP for FLC?

3. How should faculty be selected and trained?

4. How should health science curricula be adapted and administered for use in a MTDLP?

5. What means of communication should be utilized to ensure optimum student faculty interaction?

6. How will the MTDLP be evaluated?

7. What support services do MTDLP students need?

8. What are the estimated costs and technology in such a program?

Definition of Terms

Asynchronous is non-print technology that enables two or more people to communicate with one another in real time.

Audioconference is a telephone call involving more than two people.

Audiotape is the electromagnetic storage of sound.

Cable television is a communication system that distributes audiovisual material on a coaxial cable.

Compact Disc-Read Only Memory (CD-ROM) is a laser disc exactly like an audio CD, except that it can store text, graphics, and full-motion video in addition to sound.

Computer conferencing is similar to electronic mail but with many more features. In addition to regular mail, comments can be organized and stored by topic. In an E-mail system the student reads all messages in the order they were received. In a computer conferencing system, the student might first read current (or past) contributions to a conference on this weeks material, then turn to another conference storing the growing transcript about a project he or she is doing with other students. Conferencing systems often offer additional features as well to make teaching work easier.

Delivery Systems are systems in which students access the instructional material directly from a television, satellite, computer, radio, facsimile machine, telephone, or by mail.

Distance Learning is an instructional delivery system employing technology for the purpose of providing instruction to a widely dispersed student audience.

Electronic Classroom (ECR) is an instructional delivery method based on interactive and one-way telecommunication using computers.

Electronic mail allows people to send each other text messages and, in some systems, other types of computer-based information as well. A computer and modem ordinarily are used to transmit E-mail through telephone lines.

Fax is a system that transmits a facsimile of print material over telephone lines.

Information Storage Systems is a system in which the student receives some media, such as a computer disc, videodisc, videocassette, or audio-cassette, or more traditionally, a printed text, is handed to a student for direct use of playback on some type of machine.

Instructional Television Fixed Service (ITFS) is a form of closed circuit television that uses microwaves to transmit video and audio. It permits one-way broadcast or point-to-point audio, data, and video communication. In addition it provides low-cost delivery, but is characterized by crowded frequencies especially in cities. FCC licensing and line of sight is required. Wider coverage area can be achieved using

repeaters; it is sometimes used to rebroadcast satellite-delivered programming.

Interactive Computers are computers that are networked in such a way as to provide the capability of two-way and multi-faceted communication between teachers and learners.

Internet is a growing network of computer networks extending worldwide with a common address structure so that electronic mail or other files originating at one computer on one network can be sent to other computers on other networks. Among the many networks that are part of this burgeoning structure are Internet, Bitnet, CompuServe, MCI Mail, and Applelink.

Laser Disc (also called optical disc) is any disc on which data is stored and read with a laser beam. An audio disc (CD) is an example of an optical disc. Other examples include videodisc and CD-Rom.

Modem is a device that translates computer information so that it can be sent over an ordinary telephone line.

Multi-Tech is a multi-media approach to instruction using a variety of technologies such as audio, audioconference, cable television, compact disc-read only memory, computer conferencing, electronic mail, fax, instructional television fixed service,

interactive computers, internet, laser disc, modem, print, satellite, video, videodisc, voice mail, and videotape.

Satellite, Communications is a man-made vehicle that orbits the earth. Communications satellites receive electronic signals from earth and beam them back to earth at different locations.

Synchronous is non-print technology that enables two or more people to communicate with one another with a time delay.

Videodisc is an optical disc about the size of a record that can store full motion video, still photographs, and text.

Voice mail is a technology similar to an answering machine.

Videotape is electromechanical storage and audio and video information.

Assumptions

The following assumptions were made regarding this study:

1. It was assumed that respondents who are consulted on distance learning were reasonably accurate and offered information in good faith.

2. It was assumed that the panel of experts' evaluation of the MTDLP was reliable and valid.

3. It was assumed the LRCCD staff would provide technical assistance in the development of the MTDLP and course curriculum.

LIMITATIONS OF THE STUDY

Limitations of the study included the necessity to communicate with a number of parties over long distances and without face-to-face contact which could curtail in depth discussion. Also, the study is not generalizable to postsecondary institutions not possessed of missions, staffing and human resource development similar to FLC. Finally, since actual implementation and adoption of recommendations resulting from this study are contingent upon the approval process at district level of the LRCCD, ultimate evaluation of study outcomes cannot be included herein.

Chapter 2

REVIEW OF THE LITERATURE

A review of the literature was conducted relating to such topics as distance learning, the electronic classroom, and health science curriculum in order to provide a sound foundation for the study. Various instructional technologies and their role in the learning process were identified. Databases were searched to identify noteworthy and innovative approaches or models used by other institutions of higher education.

The literature review focused on programs and technologies used by various colleges and universities in the United States (US) with some attention being given to programs outside the boarders of the US. Most programs were designed for specific needs of these institutions of higher education.

Distance Learning

Various types of distance learning exist, including the traditional form of correspondence instruction. For the purposes of this project, distance learning means instruction in which the student and instructor are separated by distance and interact through the assistance of computer and communications technology. Distance learning may also

include video or audio instruction in which the primary mode of communication between student and instructor is through a communications medium such as instructional television, video, or telecourses, and any other instruction that relies on computer or communications technology to reach students at distant locations (Rumble, 1989). The separation of teacher from the learner distinguishes distance learning from face-to-face learning.

Within the context of this definition, distance learning is typically delivered through three alternatives: (a) satellite and broadcast television, which allows programs to be delivered throughout the state, nation, or world; (b) instructional television fixed service (ITFS) within regions of a state, which utilizes microwave technology to deliver televised instruction to sites within a 30 to 50 mile range; and (c) by cable television or public/private switched networks, which link together various schools, colleges, and homes (California Technology Project, 1990, p. 4-6).

In a review of state planning efforts for telecommunications in education, Richard Hezel (1990) concluded:

> Many states are using budget deficits as a justification for developing educational telecommunications projects. The rationale is that the shared telecommunications systems can deliver scarce yet needed instructional programs less expensively than a live, in-person, traveling teacher, if such a teacher is even available to teach the courses. (p. 5)

Thus, experience throughout the country with distance learning has clearly demonstrated that these new technologies provide an effective means to respond to several important educational needs. Some of these needs include the following:

1. The potential to respond effectively to the needs of the private sector for a well trained work force. Two universities that are addressing this need are California State University, Chico, and the National Technological University. These universities utilize satellite technology to deliver live, interactive courses and degree programs in engineering and computer science to corporate sites throughout the country;

2. the potential to expand access to all regions and populations throughout the state, without the need to build a campus or off-campus center in each location. The establishment of the community college system in Maine through the development of a telecommunications system linking the existing college and school sites has created electronic classrooms with

interactive postsecondary courses for students in rural areas across the state.

3. the potential to provide bilingual literacy, and citizenship instruction to the large population throughout the state in need of such instruction. The approximately two million people in California who will be gaining permanent residency in the state under the provisions of the Federal Immigration Reform and Control Act will join the large pool of California residents who need adult education services in English as a Second Language and work-force literacy.

The review of the literature on the effectiveness of distance learning indicates that "It is as effective as on-site, face-to-face instruction in the classroom" (Clark, Verduin, 1989, p. 25, and Lienau, 1987, p. 138).

Ellerton (1987) stated that

> in many cases the use of technology in distance learning is more effective than traditional classroom instruction in remote schools and in most of the small rural schools teachers with the expertise to teach the specialized subject are usually not available. (pp. 7-8)

According to the U.S. Congress (1989) "interactive distance learning is more effective when teachers give more attention to advanced preparation, visual materials, activities for independent study, student interaction, and activities" (p. 12).

Kate Gulliver questioned if distance education should be judged by its equivalency to classroom-based education, or by some other standard? And whether or not that equivalency was a given, or something to be proven by research and practice? In addition, Gulliver questioned how much is really known about the quality and effectiveness of what takes place in the classroom (Council on Postsecondary Accreditation, 1991).

Another key factor in promoting the effectiveness of distance learning is the coordinator at the distance learning receiving site, working with students as a facilitator in the learning process.

Much of the utilization of distance learning has been with academically advanced high school students and independent adult learners--individuals who tend to possess strong study skills, high motivation, and discipline. Initial studies of the effectiveness of distance learning working with young or academically weak students have indicated the technology is also effective with this population.

The Open University of Britain (OU) is probably the best known distance learning institution (Granger, 1988). The British government gives strong economic support to OU. The credibility of distance learning is in great part due to OU.

Australia, Canada and the United States also offer sound distance learning models; however, differences do exist. These programs, like OU, have drawn on the experience of established institutions and are models of integration, conventional and non-traditional learning methodologies. In these settings the transfer from classroom teaching to distance learning has often resulted in recognition that materials developed for distance learning could be used successfully in the traditional classroom (Tresman, Thomas, and Pindar, 1988).

There is no single best model of distance learning. The technology was flexible and offered multiple ways to deliver instruction over a distance. The quality and effectiveness of distance learning are determined by the quality of the educational program being transmitted and the selection of the appropriate technologies to transmit the instruction.

This review provided models and programs delivered at other institutions that served as examples and resources of how colleges and universities are currently using distance learning. The models investigated included (a) University of California, Davis (UCD); (b) California State University, Chico (CSUC); and (c) California State University, Sacramento

(CSUS). Particular attention was given to distance learning programs which have been developed at community colleges. These programs included (a) Sacramento City College at Sacramento, California (SCC); (b) Consumnes River College at Sacramento, California (CRC); and (c) Rio Salado Community College at Phoenix Arizona (RSCC).

Public Broadcasting Services as represented by the Sacramento Educational Cable Consortium (SECC) were evaluated as well. The SECC provides educational cable television access in the Sacramento community served by Sacramento Cable Television. Its channels 21 and 22 provide a world of educational resources for the entire community. Its success in providing that service has earned SECC the distinction as the nation's best in "Overall Excellence in Educational Access" for two consecutive years by the National Federation of Local Cable Programmers. One of SECCs primary goals is to provide instructional programming for all levels including: (a) k-12, (b) community colleges, and (c) university.

Distance degree programs exist throughout the United States and in specific disciplines. In most cases, these are at the associate degree level although

a few are bachelors', masters' and doctoral level programs.

The integration of distance learning and integration of technology in higher education is very evident in the community colleges. The League for Innovation in the Community College represents a consortium of 18 colleges and has formed partnerships with a number of major businesses in the United States. The merger of IBM Corporation, Microsoft, Digital Equipment Corporation and others have produced many successful programs.

Forty-two southern California colleges representing 26 community college districts have established a consortium to develop, distribute, and acquire college credit telecommunications-based instructional materials. More than 27,000 students enrolled in consortium courses during the 1989-90 academic year with each course typically including an integrated learning package consisting of 26 video lessons, a textbook, study guide, exam bank, faculty manual, and an on campus instructor. The courses are distributed through a multi-faceted network, including Public Broadcaster (PBS) and commercial television stations, cable, ITFS and satellite systems.

These programs of higher education proved to be a valuable resource for the study.

Electronic Classroom

The concept of the electronic classroom for distance learning is not new. In the 1920s the term was educational television (ETV). However, it was not until 1953 that the first ETV channel was licensed to a university. The Houston Board of Education and the University of Texas developed the first ETV channel.

Also, The British Broadcasting Company, an overseas interest, developed the first ETV during the 1950s. Japan applied the ETV concept throughout its entire educational system K-12 including higher education and other countries soon joined the effort.

Felty (1990) warns that in order to meet the demands of the twenty-first century, college's and universities must risk change and attack their comfort zones. One of the best ways to do that is to achieve wide-spread integration of computers in instructional practices.

Since its inception, Nova University has been committed to integration of technology and learning. This commitment has had a significant impact on the development and the success of this non-traditional institution. The Office of Computer and Information

Technologies goal is to maximize computing and telecommunications opportunities by matching them effectively with centers and individual unit's missions (Ostertag, 1991).

Aligning the uses of technology with institutional goals, questioning traditional practices and focusing on learning will lead to meaningful ways of integrating technology, teaching, and learning (Anandam, 1990).

The interaction in an electronic classroom (ECR) is potentially increased due to the absence of time constraints. Students have more time to think over problems before arriving at a solution.

The introduction of computerized learning can give students greater learning independence with possible improved cognitive results as well as instructors who shed the boundaries of location and place of instruction (Bowles, 1988).

The successful ECR classroom requires active group leadership. According to Romiszowski and de Haas (1989) the leader must be a congenial host who sets a non-threatening climate and stimulates the students to react by providing positive encouragement. Davie (1988) corroborates this finding by suggesting that the leader has to be a chairperson who summarizes discussions, asks for clarification, creates unity

within the group, and ensures that discussions do not digress.

As is true in a traditional classroom, the instructor is the key element in a technological learning experience. Davie (1988) offers some strategies for instructors who are facilitating an electronic classroom. They include (a) leaving a welcome message for each student, (b) reinforcing early attempts at participation, (c) referencing student comments in responses, and (d) modeling expected behavior by focusing on thought provoking ideas as opposed to mechanical skills of keyboarding.

It is noted that the California Community College Chancellor's Office was told in the fall of 1990 that unless telecourses included some opportunity for in-person contact, credit earned by a telecourse would not be acceptable to the UC system -- at least insofar as English courses were concerned.

According to George Jaeger (1991),

> The insistence on the need for in-person contact arises from the notion that the only way to experience the 'humane' in the humanities is by being in the instructor's physical proximity. Faculty who hold this view also say that collaborative learning can be achieved only in the presence of the group. The attitude that human interaction in a face-to-face setting is a necessary component of successful teaching and learning is more of a prejudice than a fact and cannot be borne out, it would appear, by empirical research. I think personal and intimate

> relationships in the highest and best sense of the word can be established with a student via a computer. (p. 8)

This same view was reflected in an address at the 1990 annual conference of the Canadian Association for Distance Education by the keynote speaker Professor Genevieve Jacquinot when she commented, "the physical presence of the teacher in the classroom is not always a guarantee of his/her psychological presence" (Jaeger, 1991, p. 9).

Multi-Tech Instruction

The educative process as practiced in most cultures involves face-to-face oral transmission in the context of the learning group. Since distance learning does not conform to this methodology, it is suspect in many cultures.

A multi-tech distance learning model must like its more traditional counterpart be built on a sound theoretical structure likened to good distance education practice. The United Kingdom, Spain, Canada, and Germany provide existing models which are currently based on principles of adult learning (Knowles, 1989).

One of the challenges in developing a MTDLP is the selection of media. Kaye (1989) suggests that teaching materials used in the traditional classroom usually

will need some modification for use in a distance learning modality.

One of the criteria used in selecting materials for DL is the scope of the course. Will the course appeal to a global audience? A second criteria should address the capabilities of the instructors and the learners. A third concern is the integration of the media. Can the various parts of the program be integrated to form a delivery system?

Some questions can be addressed in choosing appropriate instructional technology. Who is the target group and is it all adults? Is the target group studying at a designated work location or at home? What type of technology will most students possess?

The technology would not be useful if it could not reach the target group (Carrier and Schofield, 1989). In addition to this concern, Clark (1991) suggests that a technology must be selected because it helps the learning process in a unique way. However, Kaye (1989) added that the most difficult factor to analyze and predict is the cost of a multi-media distance learning program. There are fixed and variable costs. The fixed costs often being attributed to staff and production of materials while the distribution is considered a variable cost. The division between fixed

and variable costs must be considered in the economics of media selection. The greater number of students using a single component, the more effective it is to have high fixed costs and low variable costs. The smaller the institution the media choosen should have lower fixed costs. Thus, the costs of production, distribution, utilization and student costs will determine what choices of media are selected and allow for sound budget planning.

Carl (1991) explains that similar to traditional education, one of the weak links in distance learning is teacher training. Teaching from a distance is very different from face-to-face interaction in a traditional classroom.

The dropout rate tends to be higher in distance education programs than in traditional colleges. This supports Kearsly's (1990) contention that there is a greater need for pre-planning and organization.

Boshier (1989) suggests that motivational problems associated with drop-out with lack of good fit between the student and the learning environment. If the course satisfies an important need the student will not drop-out. Distance learners face psychological and physical obstacles of isolation, lack of peer support, equipment idiosyncracies and inconsistent communication

all of which increase the risk of drop-out. Boshier (1989) concluded by saying that "teachers should create an adult-oriented learning climate which is relaxed, informal, and responsive to participants needs" (p. 151).

Health Science Curriculum

The literature review using the indicators health and distance learning exposed a glaring deficiency. The search produced few articles on health education curriculum at the postsecondary or college level. Most of the articles dealt with allied health, its clinical application and distance learning.

For example, the University of Texas Tele-Learning Center conducted a project to identify criteria and procedures for using a distance learning delivery system. The intent of the study was to teach Health Occupations II to high school students seniors. The study focused on expanding the current distance learning program of health occupations to include between 15 and 20 school districts. The audio-based distance learning program used a variety of innovative instructional techniques, including computer-assisted instruction, videotaped course content, clinical rotations, and other electronic techniques. Program staff included site facilitators, health occupation

teachers, and clinical coordinators. Only one student was enrolled in the course, but the course was taught for the entire year. The student rated both the class room and the clinical experiences highly and the public also reacted positively to the program.

Two other courses were also taught by distance education, Health Occupations I and Health Care Sciences. The project's other objective, however, to expand the current distance learning program to 15 or 20 sites, was not met. The number of sites remained at 10, with five others involved but not offering the courses (Hardy, 1990).

Also, another Texas project developed a model distance learning program for a Health Care Science course. It determined the feasibility of using a distance learning delivery system for providing small rural districts with additional vocational education options. Activities included advisory committee selection, course development and support material selection, preparation of an outline of semester topics, and preparation of evaluation instruments. Media selected for delivering instruction were print materials, audioconferencing, electronic mail, computer-assisted instruction, and videotapes. Ten female high school students at three sites

participated. The delivery model was found to be effective, acceptable and viable. Seven characteristics of an effective distance learning model cited in Learning at a Distance were incorporated. A number of evaluation procedures monitored progress and success: precourse evaluations, weekly reports, electronic mail and site managers' audioconferencing, class assignments, tests, student presentations, student access, and postcourse evaluation. Student assignments and tests showed they were able to learn as effectively as if they had been in a traditional classroom. Before and after taking the course, students maintained a positive attitude about distance learning. Site managers and school administrators indicated a strong desire to continue distance learning (Allen and David, 1988).

Hunsanger (1990) conducted an appraisal of the interactive television network at Northcentral Technical College from the viewpoint of its students. The study was conducted to determine the attitudes of students who had taken interactive television network (ITV) courses. A survey questionnaire was developed and administered to a total of 117 Medical Technology I students who had been enrolled in ITV courses at the college in the fall and spring semesters of the 1989-90

school year. Usable questionnaires were returned by 63 students. The analysis of the data showed the following: (a) compared to regular classroom instruction, ITV is the same or somewhat harder regarding studying, assignments, examinations, and asking questions; (b) instructors did an adequate job of transferring information to students, although some were rated highly and others less so; (c) the equipment used was adequate, although many students pointed out problems in hearing the speakers; (d) classroom environment and classroom management techniques were also adequate, although some improvements were suggested; and (e) students were satisfied that they chose ITV over traditional instruction.

Recommendations were made to continue the program, to train instructors in the use of video techniques, to implement new attendance procedures, and to install new microphones so students could hear the instructors better.

Richard Bouton (1989) developed a model vocational education laboratory distance learning system. Bouton modified a distance learning program implemented in 1987-88 to teach Health Care Science students the clinical experience appropriate for Health Occupations I during 1988-89. The teaching team included an

instructional coordinator/teacher and four regional clinical coordinators. A total of 19 juniors and seniors at seven rural school districts participated. Health Occupations I was taught as a two-unit course encompassing two hours of instruction daily. The instructional coordinator/teacher met with students via audioconference one hour per day five days each week for the first eight weeks. The second hour was used for supplemental activities. After the first eight weeks, students spent two hour blocks three days per week observing and assisting at clinical rotation sites instead of going to the traditional classroom. Each student participated in six different four week rotations. Fourteen self-study packets were developed to prepare students for the clinical rotations and supplement the learning. Trained site facilitators provided administrative supervision at participating schools. Student performance was monitored by observation of general conduct, traditional evaluation of scholastic performance, written observational and summaries of clinical rotations. Sixteen students completed the program. Students gave high ratings to classroom and clinical experiences.

Cervinskas (1984) authored the paper titled, Telehealth: Telecommunications Technology in Health

Care and Health Education in Canada. Cervinskas examined the use of telecommunications systems in the health care field in Canada and noted that the use of such systems to assist in the delivery of health care at a distance is critical to the remote and isolated regions of the country.

The report began by reviewing the development of telemedicine or telehealth systems using various combinations of telephone, cable, microwave, and satellite technologies. Examples of such systems are provided by describing three experiments with linking hospitals in remote areas with urban teaching hospitals. The remote hospitals were the Moose Factory General Hospital in the northern district, the Sioux Lookout Zone of Northwestern Ontario, and four remote hospitals in Newfoundland. Technologies included linking via the Hermes satellite and/or slow scan television.

The applications ranged from medical diagnosis and consultation to administration, continuing education for health professionals, and patient treatment. Telehealth applications in Canada were described, including programs operating in British Columbia, Alberta, Manitoba, Ontario, Quebec, New Brunswick, and Newfoundland.

Issues involved in planning for telehealth programs were also discussed, including whether video was needed in addition to audio, protection of patient-physician confidentiality, remuneration for services rendered via telecommunications, and the need for more expertise and guidance in creating the programs to be transmitted.

The Ontario Educational Communications Authority (1989) in Toronto conducted an evaluative/feasibility report on a community course entitled Fitness Over Forty. Fitness over Forty is a 17 week multimedia course designed to lead to improved physical fitness for adults in the 40 to 60 age bracket who are of average health but have not been consistent in their physical activity. Course components included seven 30-minute television programs, a guidebook, and a fitness diary including fitness tests, computer-managed learning questionnaires, and recording charts. The study was based on telephone interviews conducted on (a) participants' motivation for enrolling; (b) their perceptions of the television programs, the guidebook, and the fitness diary; (c) their use of the course with a partner; (d) course outcomes including changes in attitudes about fitness; (e) impact of the course on

personal fitness routines; and (f) changes in diet and activity resulting from the course.

The Arizona Department of Health Services and Central Arizona College developed a Dietetic Education Program (DEP) based on personalized systems of instruction to train Community Nutrition Workers (CNW). The Program includes a 30-credit-hour community nutrition worker certificate and a 64-credit-hour Associate of Applied Arts degree in Applied Science, the latter being designed according to the American Dietetic Association guidelines for the education of Dietetic Technicians (Rye, White, Crowe, and Eichelberger, 1978).

The courses are offered through self-paced and competency-based instructional modules. Each module had several key components: (a) special notes to the student that identifies both role competencies developed by the module and any special instructions, (b) attention advisor that designates to the public health nutritionist the specific modular duties he/she has and modular areas that are related to the CNWs job functions, and (c) individual units that have an objective mini-glossary, study guide, practice test, and competency assessment.

Due to the course difficulty encountered in transferring pass/fail grades between colleges, the DEP has adopted a percentile system. A student must achieve a minimum of 70% on any advisor assessment in order to progress to the next module unit. If a student does not complete by the end of the semester all the units for a course in which he/she has enrolled, an incomplete grade is assigned. He/she may continue working on the course between semesters and during future semesters until all units are completed.

Additionally, when a course is offered in a non-traditional format, it is crucial that the details of how to work through the course be made clear. Thus, defining in the student's mind the purpose of a program and the mechanics involved in completing the program are the first priorities.

Program evaluation considered are as follows: (a) DEP staff development, (b) module development, and (c) student progress and reaction.

Summary

The review of literature indicates that distance learning will continue to grow in importance as a necessary paradigm to insure student access. With the economic constraints of most state budgets for higher education the concept of open access will continue to

be infringed upon and jeopardized. Thus, technology will aid in allowing a non-traditional access but access none the less.

Chapter 3

METHODOLOGY AND PROCEDURES

Problem Solving Methodology

The research followed the developmental problem solving methodology which resulted in a MTDLP for FLC. Special emphasis was directed towards the teaching of health science in an alternative learning modality. A variety of methodologies were employed to collect data necessary for the completion of the study.

Procedures

The MTDLP was developed according to the following procedures:

First, a comprehensive review of the literature was conducted relating to such topics as distance learning, the electronic classroom, multi-tech instruction, and health science curriculum. Sources of information included electronic databases, hard copy documents, professional journals, and magazines that generally focus on distance learning. Particular attention was given to distance learning programs which have been developed at community colleges.

Second, a search of distance learning experts began in order to locate a multi-tech model that would be used to guide the development of the MTDLP. Telephone calls, written letters, E-mail, and

electronic faxes were placed and contact was made with the following: (a) working practitioners in the field of distance learning, (b) community colleges, (c) state universities, (d) universities, (e) PBS, (f) ITVA, (g) alliances of distance education, and (h) the state chancellor's office of higher education.

There are a variety of universities and colleges across the United States that offer higher education in a distance learning modality. These institutions have gained experience in distance education; however, most did not match the vision of Folsom Lake College (FLC).

Third, the Annenberg/CPB Project was contacted because of their active involvement with distance learning. Literature was examined to locate specific criteria, standards, and expectations for faculty selection and training (Annenberg/CPB Project, 1992). There are a group of pioneering institutions in the United States involved in distance learning. The Annenberg/CPB Project's New Pathways involve seven colleges, universities, and statewide consortia using different combinations of technologies and strategies to offer distance learning programs. Some of these programs were also analyzed. Distance learning information was also obtained from projects conducted at RSCC, National Technological University, Stanford

Instruction Television, and University of California, Davis (UCD), but the analysis was not limited to these institutions.

In addition, California State University, Sacramento (CSUS); Consumnes River College (CRC); Sacramento City College (SCC); and, Rio Salado Community College (RSCC); because their innovative DL programs were also analyzed. These programs were analyzed by: (a) on site visitations; (b) E-mail; and (c) phone contact, providing practical insights into distance learning methodologies for meeting FLC needs. An interview guide of nine draft questions was used and Patton (1980) was referred to for general suggestions concerning standardized open-ended interviewing. See Appendix A.

Fourth, the media coordinator for American River College (ARC), Greg Gregory, evaluated and made suggestions to modify traditional health science curriculum for use in a MTDLP for FLC.

Fifth, the Alliance for Distance Education in California (ADEC) conference was attended to examine the positive directions and exemplary programs in existence in a variety of states. Distance learning information regarding how the interactions between

faculty and student can be increased was examined and incorporated into the development of the MTDLP for FLC.

Sixth, based on research and visitations of the UCD Instruction and Media Support Information Resources Department and the Engineering Instructional Television Program, a list of support services were recommended.

Seventh, the Government Technology Conference (GTC) was attended for the purpose of gathering data on the latest in telecommunications technology, its applications, and costs. Also, due to the changing nature of technology and college budget woes, a general list was not compiled for initiating a MTDLP and the teaching of a health science course in a multi-tech distance learning modality.

Eighth, the first draft of the model was developed and evaluated by a panel of experts involved in distance learning. The panel were chosen from an original list of names recommended by National Technological University (NTU), located in Fort Collins, Colorado. The credability of the experts was enhanced since NTU represents a national consortium of 45 universities who incorporate distance learning. In some cases, the names provided were unavailable however, this created a network of other experts working in distance learning, especially in Northern

California. The final list consisted of representatives from the UC, CSU, LRCCD, and California Community Colleges Chancellor's Office. The names and titles of these experts are cited in chapter four, under research discussion number six.

Ninth, the evaluation input of these experts was incorporated into the final draft of the MTDLP for FLC.

Tenth, the final MTDLP draft will be submitted to the LRCCD board of trustees for adoption and use by FLC.

Chapter 4

PRESENTATION OF RESULTS

Data that relate to the research questions of this study are presented and analyzed in this chapter. The data were obtained from several sources: a review of the literature, a review of established distance learning (DL) programs from postsecondary institutions, and interviews of practitioners involved in distance learning. The information gathered from these sources are related to the specific research questions of the study: (a) What has been learned in the literature review from other institutions about multi-tech distance learning?, (b) What multi-tech model should be adopted to guide the development of the Multi-Tech Distance Learning Program (MTDLP) for Folsom Lake College (FLC)?, (c) How should faculty be selected and trained?, (d) How should health science curricula be adapted and administered for use in a MTDLP?, (e) What means of communications should be utilized to ensure optimum student faculty interaction?, (f) How will the MTDLP be evaluated?, (g) What support services do MTDLP students need?, and (h) What are the estimated costs and technology in such a program?.

The literature review conducted in response to the first research question unearthed definitions and

information that revealed these major points: (a) Economic constraints of most state budgets for higher education will continue to be infringed upon and jeopardized, (b) Distance Learning (DL) will continue to grow in importance to ensure student access, and (c) Technology will aid in allowing a non-traditional access.

Multi-tech Model

The following findings are presented in response to the adoption of a model program as a guide for the development of a MTDLP for Folsom Lake College (FLC), the second research question.

The development and implementation of successful distance learning programs is a complex task, requiring careful consideration of a number of key issues. These key issues include (a) the identification of a DL model, (b) selection and training of faculty, (c) adapting of traditional curricula, (d) ensuring optimum faculty/student interaction, (e) providing support services, and (f) technology with its implied costs. Yet, as some institutions are identifying these issues and defining the mix of techniques and instruction, they are also discovering the barriers that must be overcome to enable an institution to succeed in distance learning programs. Some of the barriers

include faculty resistance, university governance, the variety of student learning styles, support services, and initial cost.

Going the Distance: A Handbook for Developing Distance Degree Programs was a source that offered a thorough discussion of the issues and challenges involved in establishing distance degree programs (Anandam, 1989).

Several distance learning programs were evaluated. The following is an extrapolated summary of four interviews conducted with distance learning program specialists. However, the interviewee's complete responses appear in Appendix B.

The first interview was conducted on November 2, 1993, with Spencer Freund, the Director of Media Services at California State University, Sacramento (CSUS).

According to Freund, the mission of the DL component of the CSUS program is comprehensive. The program provides: (a) educational services to those unable to participate in conventional learning; (b) continuing education to adults who wish to acquire new skills and knowledge; (c) serving the special requirements of business, industry, and government; and (d) the inherent responsibility to society coupled with

its obligation to ensure educational equity and fiscal conditions. The CSUS Distance Learning program includes the offering of general education courses and a master's program in business administration locally via cable TV and regionally via ITFS. In addition, a series of one time courses and professional/continuing education courseware has been delivered via satellite and compressed video.

Freund added that the hidden and non-hidden barriers in offering DL courses at CSUS were extensive. Some of these barriers include (a) the need for distance education as determined by the education mission of the institution, (b) faculty and university governance, (c) long term capital and operational financing to keep the system operational, (d) programming mix to serve the target audience, (e) faculty staff incentives, and (f) availability and expertise in using various media that includes support and training, and record keeping.

In conclusion, Freund noted that the facilities at CSUS included four instructional\studio classrooms which included delivery systems that are varied and contemporary with an emphasis on tele-communications.

The second interview was conducted November 9, 1993, via E-mail, with Betsy Frank, the Director of

Media Services at Rio Salado Community College (RSCC) in Arizona.

Frank stated that the RSCC mission is to support the larger vision of the RSCC district that is committed to students and the community. It is this tie to the vision\mission of the Maricopa Community College District (MCCD) that is responsible for much of the DL success of RSCC.

In addition, Frank pointed out that hidden barriers come in many different forms. First, there is the resistance to change from more traditionally minded administrators and faculty members. Other barriers come from the student's learning styles. For example, if an audio learner is in a telecourse, the student may have trouble adapting to the visual information. It is difficult for some students to adapt their particular learning style to a DL system that may be far different from their own. RSCC is working with student services in the form of advising, tutoring, counseling and is piloting a telephone support project. A student can take DL classes that are transferable and can earn an Associate of Arts degree entirely through DL courses.

The next interview was conducted April 14, 1993, with James Baker, Dean of Learning Resources and Communications at Consumnes River College (CRC). CRC

has a high-level interactive electronic classroom for reception and origination of instruction. CRC has three studios and one multimedia classroom. The courses are being delivered by ITFS and cable systems serving a variety of sites including a two-way audio and video between CRC and Placerville, California. This interactive approach increases meaningful faculty/student interaction and the DL program is evaluated through student questionnaires and faculty meetings.

The fourth interview was conducted April 6, 1993, with Jack Munushian, Director of the Instructional Television Network for the University of Southern California (USC), the replacement for Ms. Margaret Jones now retired.

Munushian stated through mail correspondence that the School of Engineering is responsible for all details in USC's Distance Learning program. USC cooperates with a consortium of 24 schools of engineering that use DL. The university has studio capability, and the remote student can see and hear everything that transpires in the on-campus class using auto-dial telephones. The average number of televised course taken per student is 4.68. In 1987, 95% of

USC's DL students cited the tremendous time savings and convenience as the major advantages of DL courses.

In addition to the interviews, literature from other colleges who utilize DL was examined and resulted in a model being selected. The model chosen to guide the development of the Multi-Tech Distance Learning Program (MTDLP) at FLC was the Rio Salado Community College (RSCC) model. RSCC's selection was based on its (a) theoretical structure, (b) conceptual framework, (c) adult target group, (d) sound principles of adult learning, and (e) variety of delivery systems.

RSCC is one of the 10 Maricopa Colleges and Centers. Maricopa Community College District (MCCD) and RSCC have been recognized as a national leader (MCCD, 1992, p.1) in providing alternative ways of learning. RSCC was never meant to be a place, but rather a system or an innovative educational network.

According to the RSCC catalog (1993), courses are offered in several alternative delivery formats for students who, because of time, distance, or limited mobility, do not have easy access to traditional classes. Each course offered in these formats is equivalent to the same course offered in a classroom setting and is transferable as such. In every class, students have the opportunity to contact the instructor

by telephone or in person. Furthermore, instructors keep regular telephone office hours, or messages can be relayed through the distance learning staff.

Classes are offered by television, audiocassette, videocassette, video conferencing, computer conferencing, and conference calls.

The fees are the same as any other community college course. The students may (a) receive some information in the mail from the RSCC instructor at the beginning of the semester; (b) buy a course materials packet, including the required books and study guides for the course; (c) call their instructor every week during telephone office hours, or call the Distance Learning office 24 hours a day to leave a message; (d) mail many required assignments; and (e) be required to take in-person midterms, finals, and to attend an orientation (Rio Salado Community College, 1993).

The Distance Learning class materials are identified in the class catalog and are available at the bookstore. Books may be ordered by phone and charged to Mastercard or VISA and shipped via UPS. Cash on Delivery arrangements may also be made. Materials can also be ordered by phone. The student's order will be filled when their checks arrive. (RSCC, 1993).

Faculty Selection and Training

Faculty selection is an important factor in the developmental stages of an innovative project (Markwood and Johnstone, 1992). Thus, the following findings are presented in response to how distance learning faculty should be selected and trained, the third research question.

In (Markwood and Johnstone, 1992) Ralph Meuter concludes that the extra effort required to entice quality faculty is worth it and the participation of such faculty in the early stages provides credibility that will have long-term payoffs.

Faculty selected to teach in a distance learning modality should want to participate in the program, be respected by their peers, and perhaps most importantly, be known as good teachers (Markwood and Johnstone, 1992).

The American Council on Education for Adult Learning and Educational Credentials and the Alliance: An Association for Alternative Degree Programs for Adults (1990) noted that the academic competencies of the DL faculty must be complemented by their understanding of adult learners and their goals. Likewise, part-time or adjunct faculty, who often provide special perspectives, resources, and expertise,

need similar orientation and development provided by substantive training programs.

These training programs of faculty should concentrate in three areas: (a) course development, (b) course delivery, and (c) student interaction. Instructional designers should be made available as well as graphic and technology experts to the faculty during the development process (Markwood and Johnstone, 1992).

Markwood and Johnstone (1992) point out that the technologies create opportunities for faculty to rethink content and make new decisions on how to present content.

Lacey (1988) recommends that the primary goals and key components of the faculty training sessions should address (a) an explanation of distance learning technologies; (b) a hands on participation to practice on the system(s) before they begin teaching; (c) modeling and discussing effective distance learning instructional techniques; (d) discussion with faculty, who have had a successful television teaching experience; and (e) the provision of an extensive training manual.

Based on the assumption that faculty should be prepared properly, the author's concept of a faculty

development program for teaching distance education courses at the University of Wyoming includes three major components: (a) recruitment and pre-course discussions with faculty, (b) presemester seminars/workshops, and (c) on-going coaching (Schaffer, 1990).

On the subject of teacher training needs, Kearsly (1990) suggests that a variety of media be employed in distance learning. For example, he learned that most faculty eschew the use of computers in their instructing techniques due to fear of errors and lack of expertise. He, therefore, suggests that colleges must provide ways for instructors to gain a comfort level with computers and other media. Training programs should focus on mastery of systems, personalizing instruction, student discussion techniques, and learning how to be technologically interactive.

In addition, support personnel should be enlisted to assist in teacher training because teacher training often takes twice as much time as initially planned (Marker, Ehman, 1989). Trainers should remember that technology is there to foster incremental improvement in the instruction process.

Marker and Ehman (1989) state that "training for evolution, not revolution should be the hallmark of every technological training program" (p. 30).

Community college programs, or other educational networks that offer training and support for distance learning faculty were located, evaluated and where appropriate incorporated into the MTDLP for Folsom Lake College (FLC).

Health Science Curricula

With a well-trained and oriented distance learning faculty in place, equal attention must be given to the development and administration of curricula. Here the subject of health science will serve as a model in response to the fourth research question. Local course development of distance learning programs enables colleges to broaden student access to senior faculty and to address requirements that are college-specific (Kaye, 1989).

Health Science 1 is a course taught at American River College (ARC) which fulfills the graduation requirement. In July 1991, a study was conducted to develop a curriculum document at ARC. The desired outcome was to clarify student goals in this course so as to maximize student success and to provide clearer instruction and learning directions to health science

students. To achieve that goal, a study format was developed for each health topic (See Table 1).

Table 1

Study Guide Format

Chapter Number corresponding to textbook
Title of Chapter
Learning Objectives
Terminology
Sample Test Questions
Sample Test Questions Answer Key
Relevant Concepts

Note. See Appendix C for the curriculum document.

Next, the media coordinator at ARC, Greg Gregory, was consulted in May 20, 1993, and presented with the curriculum document that had been recently developed for the Health Education I course taught at ARC and asked to make recommendations on how the curricula could be adapted and administered for use in a MTDLP. The following is a summation of Gregory's evaluation and recommendations.

Gregory believes that the curriculum document should be configured on hypercard stacks with various

pathways through the stacks based on right and wrong answers. The configurement of the pathway should begin with a detailed schematic flow chart. He also recommended that an investigation of health science video-discs, CD-ROM materials be selected for the course. In addition, important lectures and demonstrations should be made available in the Learning Resource Center for students. See Appendix D for suggested modifications as documented in letter form.

The literature search also identified a modular-based dietetic education program that could be adapted for use in a DL modality. The Arizona Department of Health Services and Central Arizona College have developed a dietetic education program based on personalized systems of instruction to train community nutrition workers. The dietetic education program is offered to student community nutrition workers in the form of competency-based learning modules. The modules can be completed both on the job and in the home and do not require the traditional classroom environment (Rye, White, Crowe, and Eichelberger, 1978).

Faculty/Student Interaction

Following the development of a curriculum document with sound structure and tested as to effectiveness in improving student success, attention must be given

to the means of communications that should be utilized to ensure optimum faculty/student interaction, the fifth research question.

The Alliance for Distance Education (ADEC) in California held its fourth annual summit in Sacramento April 27, 1993, and was attended to examine the positive directions and exemplary programs in existence in a variety of states. Three states (Oregon, Arizona, and Utah) have implemented the general use of technology to greatly increase the amount and manner of faculty-student interaction in distance learning courses. This technology included (a) computer software, (b) EdNet, (c) ITFS, (d) Microwave, and (e) instructional video.

Corroborating the ADEC conference findings the Public Broadcasting Service (PBS) Guide (1992) states that there are many means by which student and faculty can communicate easily from distant locations. The available technologies are often combined to reach students regardless of their location (PBS, 1992).

Systems that bring students and instruction together can be divided into two types:

1. Information Storage Systems which facilitates the student receiving some media such as a computer disc, videodisc, videocassette, or audiocassette, or

more traditionally, a printed text for direct use or playback on some type of machine.

2. Delivery Systems which provide students with access to the instructional material directly from a television, satellite, computer, radio, facsimile machine, telephone, or by mail.

Among the non-print technologies are the synchronous modes which enable two or more people to communicate with one another in real time and are the asynchronous or time delayed modes. In selecting a mode from the available methods of communication, the issue of cost and ease of student access to the technology must be considered (Public Broadcasting Service, 1992).

Telecommunication Technologies (TT) have greatly increased synchronous interaction between faculty and student. However, they also present an increased cost due to necessary special equipment.

Computer conferencing systems are an example of TT which allow students to type messages that appear instantaneously on the receivers' computer screens, making them a synchronous form of communication. Barbara M. Florini (Moore, 1990) describes computer conferencing as a technology that combines the convenience of mail with something approximating the

communicative interaction of the telephone. She stresses its novel support of group interaction. Florini also reports that whole courses have been offered via computer conferencing in Great Britain and at the graduate level. While computer conferencing systems are very flexible, both students and faculty may need training in their use.

Computer conferencing is frequently used asynchronously. Norman Coombs (1992) describes in "Teaching in the Information Age," Rochester Institute of Technology set the instructional goal in 1985 of using computer-mediated communication to provide the same high-quality educational experiences for off-campus learners that were available to on-campus students. Professor Coombs instituted the use of E-mail and computer conferencing, noting that computer conferencing not only provided a framework for questions and answers but it also served as a platform for sharing opinions and differing perceptions about course content or content that had been previously missing from the television course. Increasingly, colleges are using electronic mail to deliver and receive assignments and other materials to and from students.

These synchronous and asynchronous methods of communication were examined and incorporated into the development of the MTDLP for FLC.

The conference also considered demographic and educational issues of faculty/student interaction. Governments cannot provide higher education near the work place for its citizens. According to Keegan (1988) this drawback represents the best rationale for DL. The history of higher education in the United States has been one with a strong emphasis on the lecture or oral aspects of communication. Thus, the role of DL has met some resistance. Foremost is the idea is one that the distance learning environment must surely be inferior. Thus, there is the reluctance of some educators to see distance learning as an effective alternative learning model. However, in other countries of the world, DL does not generate such skepticism. In fact, Britain has established the Open University (OU) and is noted for its credibility. The OU offers creative courses which are designed to meet the varying needs of its 100,000 strong student body. Globally, the OU has been noted as the most affluent model of distance education (Granger, 1988). However, in the United States, distance learning has been very successful in well established institutions. A point

noted by Tresman, Thomas, and Pindar (1988) who determined that the approach of instruction with distance learning course materials resulted in the same degree of success as those materials used in the non-distance learning environment (p. 688).

Yet Shapiro and Hughes (1992) do point out that in addition to outdated (or nonexistent) research skills, adult DL students may find that the world of libraries and information access has been completely transformed since they were last enrolled in college. Hence, students may require an orientation in contemporary research skills in a modern library so that DL students will be on parity with the traditional college student.

MTDLP Evaluation

The effectiveness of any program rests upon impartial evaluation by qualified experts. The sixth research question on evaluation started with the choosing of a panel. The panel was selected from an original list of names recommended by the National Technological University (NTU) located in Fort Collins, Colorado, with special attention being given to those practitioners in Northern California. The credibility of the experts was enhanced since NTU represents a national consortium of 45 universities who incorporate distance learning.

The panel of experts from October through January 1993, evaluated the first draft of the MTDLP for FLC and they included (a) Claire Daughtry, the Program Manager of the Engineering ITS system, UCD; (b) Charles Raley, Manager of Instruction and Media Resource Department at UCD; (c) Spencer Freund, the Director of Media Services at CSUS; (d) Kathy Warriner, Curriculum Analyst in Educational Standards and Evaluation at the California Community Colleges Chancellor's Office; and (e) Henry Burnett, the Dean of Learning Resources at ARC. The following is a summation of their evaluation.

Claire Daughtry stated that the MTDLP for FLC is excellent! However, Daughtry stated in her experience that the distributing of tapes to students as the first draft of the MTDLP suggested is too expensive, takes a lot of staff time, and drives up the expense of the program.

Charles Raley, actually edited the document. Raley went meticulously through the document and his three pages of comments greatly enhanced the clarity and scope of the MTDLP.

However, Spencer Freund stated that he was confused by the document's format. Consequently, some of Freund's suggestions were not applied to the final MTDLP and the rationale for their rejection was as

follows: Freund commented that he didn't feel the document could be called a model. However, the title of the document he was to evaluate was titled "Multi-Tech Distance Learning Program (MTDLP)." Freund was not privy to the pedagogical model identified by the research or any other information other than that presented in the MTDLP for FLC. The MTDLP did not contain criteria as to how software would be developed or procured. Neither the management, academic governance, nor the policy and procedural issues were addressed. Freund concluded that his criticism was based on what information that he had been forwarded recognizing, however, that other reports and data covering such concerns might have been developed. The body of the MARP covering such issues were not available to Freund.

Kathy Warriner's scrutiny, similar to Charles Raley's proceeded section by section and offered constructive criticism with the intent to improve the MTDLP. Warriner made her comments in letter form and faxed me her evaluation followed by a formal letter. Ms. Warriner stated that the phone registration section was too extensive. It was, however, retained in the final MTDLP because the registration procedure is not currently in use the LRCCD, and the detail was provided

to give an example of how the process could be designed and modified for use in FLC's MTDLP.

Henry Burnett, wanted to know what learning styles the various technologies were addressing. However, the MTDLP was designed to use the ability of technology to offer a tremendous range of instructional strategies responding to the widest variety of learning styles. Burnett was also concerned with future technology and high touch strategies. As stated earlier, none of the experts were provided with the information contained in the Major Applied Research Project (MARP). Burnett suggestion on developing a list of courses which could be offered in the DL mode was duly noted, and they will be included in the recommendation section of the MARP. The expert evaluation in total, coupled with some formal letters are located in Appendix E.

Support Services

The psychological ramifications of face to face versus distance learning must be addressed. Distance learners must contend with the issue of isolation. Consequently, a wide variety of support services must be considered due to the very nature of distance learners, the seventh research question. Verduin and Clark (1991) point out that all of these services must be consonant with and supportive of the central

institution's philosophy and goals and must be closely coordinated with the total mission of the DL program.

The UCD Instruction and Media Support Information Resources Department and Engineering Instructional Television Program were visited. The following is an extrapolated summary of the visitations. However, the questions for comparison and the interviewee's complete responses appear in Appendix F.

Charles Raley, the Manger of Instruction and Media Support Information Resources Department for UCD, on November 4, 1993, was interviewed with regard to DL support services. Raley represents the information technology component. UCD has a sort of reverse distance learning student support service with Sacramento City College (SCC). SCC provides remedial education to students on the UCD campus via telecommunication technology. In addition, Raley is working with Consumnes River College (CRC) on two special projects relating to usage of the CRC satellite uplink facility. UCD is developing infrastructure with the California Community College System with a symbiotic relationship in mind to have undergraduate UCD students take selected lower division course work in a distance learning mode from CRC.

Claire Daughtry, Program Manager for the College of Engineering Instructional Television (ITV) on November 2, 1993 was the second interviewee.

Daughtry stated that Information Television (ITV) allows off-campus students to take classes at their work site without having to commute to the UCD campus, saving them three to four hours per class in travel-time. Many practicing engineers who take ITV classes would not be able to attend regular UCD classes. The ITV classes are broadcast live during the work day. Typically, full-time professional engineers enroll in one course per quarter. The number of students can range from a minimum of three depending on the need of the business and or the student.

Daughtry added that the key to the success of the students is their obtaining support from their supervisor, site coordinator, graduate advisor, instructor and the other ITV students, a crucial factor of such support.

Selected UCD classes are held in specially equipped television studios and transmitted to off-site locations by satellite transmission, wireless cable, and tape delay. The UCD-ITV system is unique because students at off-campus sites can interact with the campus classroom. A talk-back system allows off-campus

students to ask questions, give answers, and participate in classroom discussions. Instructors and students can interact with each other as in a regular classroom setting.

Based on these visitations, interviews and literature provided by these practitioners, the following support services are recommended:

Registration Procedures

The registration procedures of distance learners will be facilitated by specific procedures: (a) mail-in registration; (b) phone-in registration, combined with the existence of an 1-800 number and touch-tone selection; (c) payment by credit card; and (d) evening and walk-in registration hours.

It is essential that the DL staff be well prepared to handle all student questions in an academic fashion similar to staff handling the traditional registration process. Consideration should be given to keeping course registration open longer in order to accommodate the obligations of adult learners.

Orientation Programs

Orientation programs should consider an on campus meeting for DL students or provide a video substitute to accommodate students who cannot attend. In either circumstance, an orientation session should be

considered to acquaint the students with DL including such issues as how to access student support services. The Center for Adult Learning and Educational Credentials of the American Council on Education and the Alliance: An Association for Alternative Degree Programs for Adults (1990) recommend that orientation help students understand themselves as learners and their new learning environment.

Counseling Programs

Distance Learning counselors must address student individual needs and aspirations (Council on Postsecondary Accreditation, 1991). Dan Grander, Director of the Center for Distance Learning at Empire State College stresses the need for counselors to be sensitive to the fact that adult students usually pursue advanced education because of a perceived need or lack in themselves (Moore, 1990).

Adults have educational, personal, and career problems that must be resolved in order for them to learn effectively (Verduin and Clark, 1991). There are a variety of methods that are successful in counseling of adult learners, which include: (a) written correspondence; (b) telephone communication, if counselors have highly developed communications skills;

(c) audiocassettes; and (d) computer conferencing linkages.

Student Access To Course Materials

The distance student must have access to videotapes, course texts, and equipment. Brey (1991) reports that most institutions with distance learning programs use multiple technologies to provide students with flexible access to course materials.

Community colleges typically select two to three of the following video delivery systems: (a) public television, (b) commercial television, (c) cable educational access, (d) cable national network, (e) library viewing, (f) tape check-out, and (g) CD-ROM.

Distance learners should be able to obtain a variety of course materials with relative ease. In order to enhance student access the following issues should be addressed:

1. Videotapes should be made available at community libraries or other off-campus sites, to accommodate students who cannot receive a broadcast or who miss broadcasts.

2. Videocassettes should be sent to students with no monetary charges or with a modest use fee.

3. Tapes should be available for rental at convenient locations.

4. The course text should be available through the mail using an 800 number and credit cards.

5. Learning equipment such as computers and modems should be available through either rental agreements or reduced prices and be accessible at community sites (local libraries, high schools, places of employment).

Economic Issues/Technology

The task of accessing the implied and real costs and to recommend technology, to initiate a MTDLP at FLC is difficult to access due to the unstable California State economy and changing nature of technology. The Government Technology Conference (GTC) was attended on May 12, 1993, for the purpose of gathering data on telecommunications technology and their costs, the eighth research question. However, the GTC conference did not produce the estimated costs of initiating a MTDLP for FLC. Consequently, additional literature was examined and included, but was not limited to, the Annenberg/CPB Project.

The initiation of a MTDLP is difficult to assess due to the fixed and variable costs which must be considered. Faculty, staff, and materials are fixed costs whereas the number of students and the distribution of the course materials are a variable

cost. The success and failure of many distance learning programs can be directly attributed to the cost of the program for the student (Bates, 1988).

Hezel (1990) notes that more and more states are adopting a comprehensive approach to educational telecommunications planning. Arlene Krebs (1991) stated that private sector funding is frequently viewed as the solution to the financing needs of telecommunications systems. She reports that educational partnerships with business and industry have increased over the last two years. New course development, training programs, and new software development are all areas that external money might benefit.

In trying to assess the real costs involved in distance degree programs, a number of questions about the ultimate benefits of the project are raised. Markwood and Johnstone (1992) noted that if the costs extend access to and enable the success of underserved student populations in ways that fulfill the mission, then the costs are warranted; if the costs fail to address the mission, or if they buy more tools than are effectively being used by the students and faculty, then the costs obviously outweigh the benefits.

In addition, will the MTDLP retain students who might otherwise drop out or attract new students to the institution? Is the MTDLC helping FLC to overcome other problems such as the physical plant that limits its ability to expand enrollment? Does the MTDLC enable FLC to expand its curriculum into newer, "cutting-edge" areas that better serve the community? (Markwood and Johnstone, 1992).

Technological adoption begins with awareness of the technology; however, the ultimate decision should focus on whether the product is needed (Lewis and Wall, 1988). Anandam (1989) collaborated this contention by cautioning that distance learning proponents must find an institutional context for using technology that reinforces the institution's goals.

Clark (1991) stated that the media chosen should consider the presentation characteristics of the learning material and the appropriateness for delivering it to large numbers of students. In addition, a medium must be selected because it helps the learning process. Clark (1991) added that the program and the audience are essential and must be considered in the selection process. For example, the choice of interactive communication or live presentations are two of the many questions that must

be addressed in relation to the achievement of student success as well as in making decisions with regards to production styles.

There are certain factors which should be considered when deciding which media and how that media should be used. According to Carrier and Schofield (1989) perhaps the two most important factors are access and delivery. Media may be effective, but it is rendered useless if it does not reach the target group.

Carrier and Schofield's (1989) study developed a target of older working students who will study primarily at home with arranged collaborative learning groups and some face to face class time. Thus, it is presumed that the students who register for this course will be computer literate, have access to a computer, telephone, modem, vcr, and cassette tape player.

Also, there are other factors that must be taken into consideration that ultimately depend upon intuitive judgment (Bates, 1990). Thus, there does not seem to be an optimum choice for the type of selected media or for its uses. Each system must be designed to meet the circumstances in which it must operate. However, a systematic approach can and should be utilized in the process.

In addition, the number of institutions actually offering DL programs and especially distance degree programs is relatively small. Typically, initial enrollments are limited; consequently, a true picture of operating costs for a fully enrolled system is nearly impossible to determine (Ostertag, 1991).

Final Draft of MTDLP

The first draft of the MTDLP model was evaluated October 1993 through January 1994, by a panel of distance learning experts chosen from an original list of names recommended by National Technological University (NTU), located in Fort Collins, Colorado. The credibility of the experts was enhanced since NTU represents a national consortium of 45 universities who incorporate distance learning. The final list consisted of representatives from the University of California, California State University, California Community College, and California Community Colleges Chancellor's Office.

The evaluation input of those experts was incorporated into the final draft of the MTDLP. Table 3 lists the elements of the MTDLP developed for FLC.

Table 3

MTDLP Format

Vision
Mission
Introduction
Fees
Registration
Orientation
Student Access to Course Materials
Assignments/Exams
Registration Worksheet
Evaluation Form

Note. See Appendix G for the MTDLP for FLC.

Summary

The MTDLP was developed to make higher education available for all citizens and to initiate the transition process from a traditional to a non-traditional, MTDLP at FLC. The development of the MTDLP was complex and required careful consideration of key issues. These key issues included (a) the identification of a MTDLP model, (b) selection and training of faculty, (c) adapting traditional health science curricula, (d) ensuring optimum faculty/student

interaction, (e) support services, and (f) technology and its implied costs.

Chapter 5

DISCUSSION, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Discussion of Results

The purpose of this study was to develop a Multi-Tech Distance Learning Program (MTDLP) for Folsom Lake College (FLC), with emphasis on teaching health science.

Questions which guided the research study included the following (a) What has been learned in the literature review from other institutions about multi-tech distance learning? (b) What multi-tech model should be adopted to guide the development of the MTDLP for FLC? (c) How should faculty be selected and trained?, (d) How should health science curricula be adapted and administered for use in a MTDLP?, (e) What means of communications should be utilized to ensure optimum student faculty interaction?, (f) How will the MTDLP be evaluated?, (g) What support services do MTDLP students need?, and (h) What are the estimated costs and technology in such a program?.

Results described in Chapter 4 that answered what has been learned about distance learning (DL), the first research question, were derived through a literature review. The review of the literature

indicates that DL will continue to grow in importance as a necessary paradigm to insure off-campus student success. With the economic constraints of most state budgets for higher education, the concept of open access will continue to be infringed and jeopardized. Thus, technology will aid in allowing students a non-traditional access to education but access nonetheless.

Many institutions of higher education have developed technologies to help the learning process (Clark, 1991); however, they fall short of a MTDLP. A DL program that reinforces the institution's vision/mission in part includes (a) satellite/broadcast television, (b) ITFS used within the regions of many states, and (c) cable television. Experience throughout the world has clearly demonstrated that DL systems provide an effective means to respond to the following educational needs: (a) the private sector in developing a well trained work force, (b) the potential to expand without the need to build facilities, and (c) the potential to provide bilingual literacy and citizenship instruction.

Next, interviews were conducted with program specialists and coupled with the literature search produced the results that identified a DL model to guide the development of the MTDLP, the second research

question. Rio Salado Community College (RSCC) Model for distance learning was identified. RSCC's selection was based on its (a) theoretical structure, (b) conceptual framework, (c) adult target group, (d) sound principles of adult learning, and (d) variety of delivery systems.

RSCC is one of the 10 Maricopa Colleges and Centers located in Phoenix, Arizona. Maricopa Community College District (MCCD), which includes RSCC, has been recognized as a national leader (MCCD, 1992, p.1) in providing alternative ways of learning. RSCC is not a place but rather a system that includes an innovative educational network.

Following the identification of the RSCC model, attention was directed towards faculty selection and training, the third research question. These results were derived from literature examined by the Annenberg/CPB Project New Pathways, RSCC, National Technological University, Stanford, and University of California, Davis, but the analysis was not limited to these institutions. These programs were analyzed by (a) on site visitations, (b) E-mail, and (c) phone contact that provided practical insights into distance learning methodologies for meetings FLC's needs. There are essential factors of faculty that teach in DL

programs. Faculty that teach in DL programs should want to participate in the program, be respected by their peers, and, perhaps most of all, be known to be good teachers (Markwood and Johnstone, 1992). Ralph Meuter (Markwood and Johnstone, 1992) concludes that the extra effort required to entice quality faculty is worthwhile, and the participation of such faculty in the early stages provides credibility that will have long-term payoffs. According to Boshier (1989), substantive training of faculty concentrates in three areas: (a) course development, (b) course delivery, and (c) student interaction.

In addition, a MTDLP must, like its more traditional counterpart, be built on a sound theoretical structure (Clark, 1990). Kaye (1989) stated that success in DL programs often starts with the materials developed for DL. Therefore, the results that answered the fourth research question were derived from the evaluation of a traditional health science curriculum document by the media coordinator for American River College. The literature review manifested the fact that most health science curriculum used in DL programs were in allied health and its clinical application. Thus, a curriculum document was developed in July 1991 which fulfills the health

science requirements for graduation at American River College. Therefore, the media coordinator was asked to make recommendations on how the curricula could be adapted for use in a MTDLP. It was recommended that the curriculum document should be configured on hypercard stacks with various pathways through the stacks based on right and wrong answers. Furthermore, the configurements of the pathway should begin with a detailed schematic flow chart.

Following the evaluation of a health science curriculum document, focus was directed towards the means of communications that should be utilized to ensure optimum faculty/student interaction. The results of this fifth research question were based on the attendance of the Alliance for Distance Education summit May 10, 1993. Distance learning information regarding how the interactions between faculty and students can be increased was examined. It was found that systems that bring students and instruction together can be divided into information storage systems and delivery systems. Also, technologies are either synchronous--real time, or asynchronous--time delayed. Telecommunications technologies have greatly increased interaction between faculty and students. In addition, computer mediated communication can provide

the same high-quality educational experiences for off-campus learners that are available to on-campus students. Professor Norman Coombs (1992) instituted the use of E-mail and computer conferencing. Coombs noted that computer conferencing not only provided a framework for questions and answers, but also served as a platform for sharing opinions and differing perceptions about course content.

Results that answered the sixth research question on the MTDLP evaluation was accomplished by a panel of experts involved in distance learning. The panel were chosen from an original list of names recommended by National Technological University (NTU) located in Fort Collins, Colorado, with special attention being given to those practitioners in Northern California. The credibility of the experts was enhanced since NTU represents a national consortium of 45 universities who incorporate distance learning. The panel of experts that evaluated the first draft of the MTDLP from October through January 1993, for FLC included: (a) Claire Daughtry, the Program Manager of the Engineering ITS system, University California, Davis (UCD); (b) Charles Raley, Manager of Instruction and Media Resource Department, UCD; (c) Spencer Freund, Director of Media Services at California State University,

Sacramento; (d) Kathy Warriner, Curriculum Analyst in Educational Standards and Evaluation, California Community Colleges Chancellor's Office; and (e) Henry Burnett, Dean of Learning Resource at American River College. The panels comments were very positive with specific recommendations being cited to improve the MTDLP. Two of the evaluator's were confused about the MTDLP. In these cases, the evaluators comments were rejected due in part to their own recognition that the MTDLP did not include the complete study. However, the composite expert evaluations were noted and incorporated to the final draft of the MTDLP.

The psychological ramifications of face to face versus distance learning and the issue of isolation emphasized the need for support services. Results that answered the seventh research question on the need of support services for MTDLP students were based on research, visitations, and interviews of several DL programs. These programs were not limited to but included the University of California, Davis (UCD) Instructions and Media Support Information Resources and the Engineering Instructional Television Program.

The support services found to be necessary for an effective DL program included: (a) registration

procedures, (b) orientation programs, (c) counseling programs, and (d) student access to course materials. It was found essential that DL staff be well prepared to handle all student questions in an academic fashion similar to staff handling the traditional registration process. Also, it was noted that registration procedures must be facilitated by mail-in, phone-in, evening, and walk-in registration hours.

In addition, orientation should consider an on campus meeting or provide a substitute video to accommodate students who cannot attend. This orientation should focus on students and their new learning environment.

Equally important to support services are DL counselors who subscribe to the premise that adult students usually pursue advance education because of a perceived need or lack in themselves (Moore, 1990). Thus, DL counselors must acknowledge that there are a variety of methods that are successful in counseling adult learners, which include: (a) telephone communication, (b) audiocassettes, and (c) computer conferencing linkages.

Another, important DL support service includes student access to course materials. Thus, access can be accomplished by utilizing multiple technologies to

provide students with flexible access to course materials. Learning equipment should be made available through rental agreements at a reduced price, and located at a variety of community sites.

Furthermore, support services should equally require active group leadership. The leader must be a congenial host who sets a non-threatening climate and stimulates the students to reach by providing positive encouragement (Romiszowski, 1989). Consequently, the monitoring of progress, including weekly reports and postcourse evaluation, showed students were able to learn as effectively as a traditional course (Allen and David, 1988).

The results that answered the eighth research question on costs and technology was not produced by attending the Government Technology Conference. Consequently, additional DL literature was examined. The cost of a MTDLP are difficult to assess because there are fixed and variable costs which must be considered. In addition, the success and failure of many DL programs can be directly attributed to the cost of the program for the student (Bates, 1988). In trying to access the real costs involved in distance degree programs, a number of questions about the ultimate benefits of the project were raised. Markwood

and Johnstone (1992) noted that if the costs extend access to and enable the success of underserved students in ways that fulfill the mission, then the costs are warranted; if the costs fail to address the mission, or if they buy more tools than are effectively being used by the students and faculty, then the costs obviously outweigh the benefits.

Technological adoption begins with awareness of the technology; however, the ultimate decisions should focus on whether the product is needed (Lewis and Wall, 1988). Clark (1991) stated that the media chosen should consider the presentation characteristics of the learning materials and the appropriateness for delivering it to large numbers of students. In addition, a medium must be selected because it helps the learning process. According to Carrier and Schofield (1989) media may be effective, but it is rendered useless if it does not reach the target group. Also, there are other factors that must be taken into consideration that ultimately depend upon intuitive judgment (Bates, 1990). Thus, there does not seem to be an optimum choice for the selected media or for the use of media. Each system must be designed to meet the circumstances in which it must operate.

Conclusions

The purpose of the study was the development of a MTDLP for FLC with special emphasis on the teaching of health science. This purpose was accomplished. DL in its most positive application is used to cross difficult physical and social boundaries, reach minorities, high risk learners, and the handicapped (Keegan, 1988). The MTDLP is a step in a social evolution, an imaginative and yet practical attempt by Los Rios Community College District and specifically FLC to invest itself with the survival skills needed in a highly competitive world that increasingly values the educated, cooperative, and technologically competent citizen.

The MTDLP coupled with DL technologies have advanced FLC's mission by developing a non-traditional program focused on increasing educational access and learning opportunities. In addition, the concept that a MTDLP will save the LRCCD time and money was based on the premise that it is more cost effective to transport information than people. Research conducted during this study indicates that the MTDLP is an appropriate delivery system for FLC students who for a multitude of reasons want to utilize the DL instructional modality.

The DL model at RSCC, after review of several models, was chosen because of its national recognition as a leader in providing alternative ways of learning (MCCD, 1992). This model resulted in the proposal of the MTDLP for FLC located in Appendix G.

Based on research, the MTDLP for FLC included recommendations for (a) support services, (b) registrations procedures, (c) orientation programs, (d) counseling programs, (e) student access to course materials, and (f) course/instructor evaluation forms.

The LRCCD is willing to commit resources to this major applied research project according to LRCCD's strategic plan (LRCCD, 1992). The MTDLP will expand the student access to higher education and manifest the LRCCD's commitment to the concept of "open enrollment" for all students, being limited only by their spirit and ambition. In order, to meet the demand of the 21st century, colleges and universities must risk change and attack their comfort zones (Felty, 1990).

Based upon interviews and visitations, FLC has a DL infrastructure to draw upon that emanates from the UC, CSU, and community college systems of higher education in California. These existing systems are able to provide new delivery modes of enhanced instruction to distance students.

Implications

The development of a MTDLP for FLC with emphasis on teaching health science will impact the educational setting in a number of ways:

First, the MTDLP will initiate the transition process from the current traditional course offerings at FLC to a more non-traditional focus.

Second, the MTDLP will offer another instructional dimension to the LRCCD and more specifically, the newly established FLC. The model will take health science to another segment of the increasing adult student market in the Sacramento, California, area. The program will bring the teaching of health science to the student and increase enrollment by addressing the needs of the individuals who currently cannot travel to the main campus.

Third, the health science curriculum could be expanded, improved, and adapted for use in a multi-tech format to reach out to geographical areas within the borders of the United States and internationally to help contend with the current AIDS crisis.

Fourth, FLC will be seen as a non-traditional program that the local business, industry, and higher education community will continue to support based on FLC's master plan.

A final implication for the improvement of the educational setting will be the conversion of other course offerings as stated in FLC's master plan.

Recommendations for Implementations, Dissemination, and the Improvement of Practice

The recommendations for implementation will consist of (a) adoption of procedures, (b) promotion of the program, (c) program development, (d) implementation, and (e) evaluation. It will be recommended that:

- Based on FLC's vision and mission statement that the MTDLP be proposed for adoption by the board of trustees for the LRCCD. The new delivery system will be presented in a plan based on this study. The report to the board of trustees will stress the importance of the new delivery system in context with FLC's vision, mission statement, and student needs.
- The promotion of the MTDLP be started immediately following adoption by the board of trustees. A video tape explaining the MTDLP will be developed for view by prospective students.

- A Quasi-Experimental research study be conducted on the health science curriculum document to determine if it improves student success.
- The preparation of instructional materials begins immediately after the MTDLP is adopted by the LRCCD board of trustees (Kaye, 1989).
- FLC develop a computer environment and the technological support needed to bring its vision and mission to fruition. This should include a computer-assisted multimedia installation in order to take full advantage of current instructional technology and an integrated voice response system for telephone registration.
- FLC will design facilities to accommodate computer based information systems. Anticipating continued development in the digital video signal processing, FLC should investigate the digital video signal processing that allows graphics, video, audio and text to be stored, retrieved and processed on the interconnected networks.
- FLC will expand to offer regular academic courses for both credit and continuing

education use. This expansion should extend to the eventual delivery of special non-credit classes for a wide range of industrial and business employees.

- The MTDLP be conducted over a trial period of one year. A time schedule for training and program implementation will be discussed and confirmed.
- A formative evaluation of the program be conducted after the first year of operation. There is a variety of instruments that have been developed for the evaluation of distance learning programs and one of these instruments will be selected. A summative evaluation will be performed at the end of the semester by the instructor in order to make changes and improvements in the health science curricula.
- Further development of course instructor evaluation forms be continued to produce a cadre of DL instructors in the LRCCD who are outstanding.

The results of the study will be disseminated in several ways. Copies of the study will be made available to all four colleges represented in the LRCCD.

The study will be submitted for inclusion to the ERIC data base. The results indicate that technical aid is necessary in developing the health science curricula currently being used in the traditional health science class:

1. The recommendations of the director of media services at ARC should be brought to fruition.

2. Literature indicated that programs which employ only one media such as computers or television are not as effective as those that employ multi-tech media.

3. The fees of the FLC student would best be served by providing a MTDLP which incorporates technology.

4. The institutions of higher learning interviewed in this study need to coordinate their efforts to provide new delivery modes of enhanced instruction to distance students.

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APPENDIXES

APPENDIX A

Interview Questions

The following questions were used to analyze the institutions of higher education identified in procedure number three.

1. Does your institution have a distance learning (DL) program?
2. What is the mission of the program?
3. What are some of the hidden barriers to DL success?
4. How is the program being administered?
5. Do you have studio production capabilities?
6. What policies govern admission to the program?
7. How are courses being delivered (TV satellite, computer, video, audio, print based, etc.)?
8. What departments are represented in DL courses?
9. How do you evaluate the DL program?

APPENDIX B

Summary of Interviews

The following findings are presented in response to the third research question.

Director of Media Services, CSUS

The first interview was conducted with Spencer Freund, the Director of Media Services at California State University at Sacramento (CSUS). A series of nine questions that are included in appendix A were posed to Spencer on November 2, 1993 and his responses include the following:

1. CSUS does have a DL component offering courses locally via cable TV and regionally via ITFS. General education courses make up the cable program while the Master of Business Administration (MBA) serves industrial sites via ITFS. A series of one time courses and professional/continuing education courseware has been delivered via satellite and compressed video.

2. CSUS mission in DL is generally defined as follows: (a) provide educational services to those unable to participate in conventional learning, (b) offset time and distance constraints in the delivery and utilization of educational services; (c) provide continuing education to adults who wish to acquire new

skills and knowledge; (d) offset campus physical facility limitations; (e) serve the general educational (G) needs of our community, region and state; (f) meet and serve the special requirements of business, industry and government; (g) be responsive to society, educational equity and fiscal conditions; and (h) be competitive in a changing educational environment.

3. There are a number of hidden and non-hidden barriers to success and they are (a) the need for distance education as determined by the educational mission of the institution and its current level of educational activity; (b) faculty and university governance; (c) long term capital and operational financing to keep the system operational as opposed to merely start up costs; (d) user diversity, such as the availability of a sufficient number of users to make the system cost effective which includes production techniques and marketing; (e) programming mix which includes the availability of academic programming to serve the target audience and the ability to deliver this program at times convenient to the user; (f) programming mix which includes the availability of administrative activities to serve the institution internally or externally; (g) faculty/staff incentives, and the availability and expertise in using various

media that includes support and training; (h) telecommunication resources that includes the physical facilities, transports for academic, and administrative delivery of all services; (i) record keeping and advising; (j) academic standards and certification; (k) examination and assessment; (l) learning resources; (m) amount of face to face instruction; (n) amount of interaction in real or non-real time between student to student, student to faculty; and (o) lab sessions.

4. The courses that are offered under the general education program are administered/managed by the dean of general education. The MBA program is a cooperative effort to the School of Business and Regional/Continuing Education.

5. CSUS has four instructional studio\classrooms that include a teleproduction center and one videoconferencing environment.

6. Students enrolling in the MBA programs are already CSUS students. Students enrolling in the Regional/Continuing Education via DL follow their governance as required by them and/or the department offering the course.

7. Delivery systems include (a) cable TV, (b) ITFS, (c) point to point microwave (d) satellite, and (e) compressed video.

8. We have offered one or more courses representing every one of our schools (Business, Engineering and Computer Sciences, Education, Arts and Sciences, Health and Social Services).

9. Every course offered under G is evaluated. Typically we also evaluate special courses/programs that are delivered as professional or continuing education events as well.

Spencer Freund had some visionary concepts on distance education as well as comments on the relationship between the university and the LRCCD district. Freund's associate, Allan Hinderstein, the Assistant Director for Media Technology was interviewed briefly and discussed such matters as videoconferencing, graphics support for instructors, and provided a thorough tour of their facility.

Director of Media Services, RSCC

The second interview was conducted via E-mail with Betsy Frank, the Director of Media Services, at RSCC in Arizona. The following were her responses to the questions in Appendix A.

1. Yes, we do. RSCC was designed to be the college that would provide educational services to the underserved and unserved geographic areas and special populations of the county. RSCC was the vanguard of the district, piloting the use of technology for delivery of instruction and services as well as challenging educational traditions in format and delivery plans. RSCC delivers education directly to the homes of 2,000 students with the use of alternative delivery courses.

2. The mission of the DL program is to support the vision/mission of RSCC. Fortunately, DL has been incorporated with those important statements. This was a very big issue at the last CHE conference and I felt very fortunate to have that kind of support from the administration of RSCC. Many DL programs do not have a direct tie into the vision/mission of the college and are struggling as a result.

The vision is in part . . . our responsive and responsible commitment to our students and communities and is evident through accessible student services, innovative learning design and convenient delivery, supported by advanced technology . . .

The mission in its entirety involves the creation by RSCC of convenient, high-quality learning

opportunities for diverse populations. We specialize in customized, unique programs and accelerated and distance delivery formats. In all that we do, we pursue continuous improvement and innovation, and we challenge the limits of tradition.

3. Hidden barriers come in many different forms. First, there is the resistance to change from more traditionally minded administrations and faculty members. It is really a fear of trying technology or away-from-campus education. I believe, though, that the number of two and four year institutions offering DL in some form is growing and that will certainly help the attitudes.

Other barriers come from the students themselves and their learning styles. It is difficult for students to adapt whatever particular learning style that is comfortable for them to a DL system that may be far different. An audio learner is in a telecourse; the student may have trouble adapting to the visual information. Of course, motivation (or lack of it) is a barrier. Many students are used to a faculty member directing their activities (in-person, verbally) daily or three times a week. When students are left to themselves, it is hard sometimes. I do find, however, that the adult learner has more motivation and self-

discipline than the younger students. Rio is working with Student Services in the form of advising, tutoring, and counseling to try to assist these types of issues.

We are also piloting a huge telephone support project which is targeting these types of issues. Another barrier is the lack of spontaneity in some DL systems. If a faculty member suddenly gets a great idea for a new, different assignment, it's tough to get it out to the students. Again, ways to combat that are to provide opportunities for interactivity through teleconference, computer conference or video conference.

4. The program is administered by an Associate Dean who reports to a dean of instruction. The DL program is administered exactly the same way as any other instructional program in our college.

5. We are slowly putting together studio production capabilities. But it will be a long time before we have a regular studio like the one I saw in Salt Lake. If you're asking whether or not we can produce telecourses, the answer is no. We don't have the ability at this time to go live with video courses over a TV channel. We purchase pre-produced telecourses from the big shops.

6. There are no special admission standards required to participate in our DL program. I've sent you a catalog which outlines our college policies.

7. RSCC provides distance learning through alternative delivery. The following are DL courses at RSCC: (a) audiocassette, (b) videocassette with conference calls, (c) television, (d) computer conferencing, video conferencing, (d) conference call, and conference call with Image Net.

8. Mainly, our DL program offers general education courses which meet two and four year degree requirements. It is possible to take only DL classes through RSCC and receive an Associate of Arts degree. We offer a very few specialized occupational courses in the schedule.

9. We continually refine our evaluation process. We have a faculty evaluation which differs from "real time" courses. There are two sections that comprise the faculty evaluation. Section I is written by the faculty member being evaluated in paragraph form. Section II is to be completed by the Distance Learning Administrative Assistant. In addition, there is a course design evaluation form. Mike, I've also included information about the Maricopa District networking history and some details of how the network

is used. I hope this information is helpful! Let me know what else you need.

Dean of Learning Resources, CRC

The third interview was conducted with James Baker, Dean of Learning Resources and Communications at CRC. The following includes his responses:

1. Yes, currently CRC has one high-level interactive classroom that provides both onsite and distant learning opportunities for students. We also have a large-seating capactity electronic classroom/activity center for reception and origination of instruction.

2. The mission of the program is to provide instruction to distance learners including working adults, re-entry students, single parents or any student who for whatever reasons has difficulty getting to class. Sites currently operational include Folsom Prison, Franchise Tax Board, Sutter Hospital, Placerville Center, Folsom Center and King Video Cable. Some of the sites currently pending and will go on line January, 1994 include Realtors Association, United Way Volunteer Center, Sacramento Safety Center, Chancellor's Office and the Methodist Hospital.

3. One of the barriers is test security; the ebb and flow of the written assignments can be burdensome for the student and instructor.

4. I am the person responsible for the administration of the DL program. I obviously have a staff that includes (a) a coordinator, (b) full-time telecommunications technician, (c) two engineers, (d) half-time technician, and (d) remote monitors.

5. We have three studios and one multimedia classroom.

6. The admission to the program is governed by standard community college and district policies.

7. The courses are being delivered by ITFS and cable systems. The ITFS system currently has four channels in operation for one-way and two way audio to a vareity of locations as addressed in the video type. The ITFS is currently being enhanced in two very important ways that include (a) the ability for students to have meaningful interaction with faculty, and (b) two-way video between CRC and Placerville, California. The near plans call for the ITFS system to go into 100 specific sites. Currently, CRC has one planned large capacity (Forum) electronic classroom, both "C" and "Ku" band downlink and "Ku" Band Earth Station (uplink) planned for January 1993. The campus

is also scheduled to be a beta test site for a four-station personal communication devise/service. We plan to develop both instructional and contract option such as that with Pac West.

8. All of the departments at Consumnes River College are represented with DL courses.

9. The DL program is evaluated through student questionaires and faculty meetings. The following is a summary of a multi-media/distance learning survey conducted in September of 1993.

Summary of responses

Questions:

	Yes	No	Undecided
Did you enjoy the multi-media experience?	82	2	0
Did the experience enhance the knowledge of the subject?	74	9	1
Was your understanding improved by the experience	72	10	2
Did you learn more easily because of the use of multi-media?	67	14	3
Total number of responses:	84		

Director of ITN, USC

The fourth interview was not conducted with the Dean of Learning Resources, Margarete Jones. Ms. Jones' position was vacant due to her recent

retirement. Consequently another DL program had to be selected. The DL program selected was the University of Southern California (USC). Jack Munushian, the Director of the Instructional Television Network provided the following information.

1. In 1967, USC's School of Engineering first began thinking about using telecommunications technology to take its courses off campus directly to local industry. The school had always had a large number of part-time students working in the high technology industrial community taking courses leading to the Master's degree. These students would often commute long distances, usually at night, to attend lectures. It was an inefficient and tiring experience. Students could rarely take more than one course a semester and because of the inconvenience would often skip semesters. It was felt, at the time, that a more efficient method had to be found to deliver both initial degree education and continuing education to part-time students employed in industry.

2. The mission includes providing an efficient method of delivery for both initial degree education and continuing education to part-time students employed in industry.

3. There were hidden barriers of the program in the beginning. They included (a) the logistics of tape delivery, (b) the number of courses/remote sites and their distances from the campus, (c) lack of personal contact with professors, (d) problems with getting handouts and homework at the same time as campus students, and (e) equipment problems.

4. The school of engineering is responsible for all details in USC's DL program. USC cooperates with a consortium of 24 schools of engineering that use either live television or tape delivery for the continuing education of engineers. It is known as the Association for Media-Based Continuing Engineering Education (AMCEE).

5. USC's ITV network originates its productions from four studio classrooms. Each has two color television cameras - one to look at the instructor and the blackboard, and another to look down on a desk should the instructor choose to sit facing the class writing on a pad. The remote student can see and hear everything that transpires in the on-campus class and can ask questions using FM radio links to auto-dial telephones.

6. Matriculated students working towards a graduate degree pay regular university tuition plus a

per unit television surcharge. Auditors pay approximately one fifth of the tuition and do not receive a grade. There is a third category of student unique to the TV system - the Non-Degree Option student. This student receives an unofficial grade determined by the same standards as used for degree students. Non-degree students pay one half tuition plus the television surcharge. If the student later applies and is admitted to the university, he or she may convert up to the first 123 non-degree units for credit towards the degree if the tuition differential is retroactively paid.

7. The courses are delivered through a television network system that broadcasts courses "live" with provision for the remote students to be able to interrupt the instructor to ask questions. The network uses the ITFS band of frequencies in the low microwave spectrum around 2500 megahertz, set aside by the FCC in the early sixties for education use. The USC system operates on four channels. The Network also makes satellite teleconferences broadcast by such groups as NTU.

8. The Network provides regular USC engineering, mathematics and computer science courses for either degree credit or for non-credit continuing education.

Because of the large number of courses offered over the Network, it is possible to complete a Masters Degree in electrical engineering, computer science or computer engineering entirely via the Network.

9. The DL program is evaluated by questionnaires sent to students enrolled in courses. One such survey was conducted by Hughes Aircraft Company in 1987. Some of the results were as follows: The average number of televised courses taken per student is 4.68. Of the 422 students, 373 took courses for degree credit. 25 percent rated the ITV class as superior, 31 percent inferior, 36 percent no different and 8 percent had no response. 28 percent rated the USC-ITF system as excellent, 65 percent good, 7 percent fair, 0 percent poor. 95 percent of the students cited the tremendous time savings, including the convenience of attending classes at work as the major advantages of ITV courses. 87% said they would take more courses over the ITV Network.

APPENDIX C

Health Science Curriculum Document

HEALTH SCIENCE

A STUDY GUIDE FOR THE COLLEGE STUDENT

by

Michael L. Rasler, M.A.

SCIENCE DEPARTMENT

AMERICAN RIVER COLLEGE

1991

PREFACE

This Health Science study guide was prepared to inform the student of the course objectives, content areas, and criteria for successfully completing the course. The Study Guide is neither the text for the course nor a supplement to the textbook, but a guide which defines the competency standards required for successfully completing the course. The instructor is also available. Do not hesitate to call for help. Office hours vary so check with the science department secretary for current times.

About this Course

As a course at American River College, the basic purpose of Health Science is to assist learners toward the broad understanding and appreciation of health education issues. Health education and its curriculum development has been in response to the needs of society. And as a science discipline health education employs a specialized terminology which can be somewhat confusing. This course is designed to help reduce this confusion and enhance your understanding of the field.

About this Study Guide

You will note that this is the alpha validation edition of the study guide. The intent is to revise and improve the study guide annually. Thus, your instructor has chosen not to bind the document, but rather to prepare the guide for mounting in a three ring binder. This way, changes and updates can be executed with a minimum of disruption to the document.

The instructor wills the opportunity to provide information regarding needed changes to the instructor, so the study guide can be further revised, refined, and updated to meet the current needs of students.

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HEALTH SCIENCE I

Course Description

This class is designed to focus attention upon those elements of human behavior which influence the health status of both the individual and the community. Topics include: nutrition, stress management, sexuality, sexually transmissible diseases, contraception, abortion, pregnancy and childbirth, drug dependence, cardiovascular health, and cancer.

Philosophical Position

People are very health conscious today, and there is a wide variety of health aids to choose from: exercise, diet, and spaceage medical procedures. Yet, in spite of huge sums spent on these things, are we healthier now than in the past? What can we do about our health? Dr. Rasler will raise your awareness of sound health principles and encourage you to apply them more fully in your life.

Learning Outcomes

This course is designed to assist learners in the attainment of the following competencies:

1. Understand the serious impact stress has on our lives and how to manage it more effectively.

2. Discuss proven, well established nutritional principles.

3. Know the male and female reproductive systems.

4. Discuss the important issues to be considered when choosing a contraceptive.

5. Understand the impact of drug dependence on the individual, the family and society.

6. Relate the effect of lifestyle on the advancement of chronic diseases.

7. Describe the cause, symptoms, diagnosis, treatment, and consequences of the major sexually transmissible diseases.

8. Identify the methods of abortion, including the circumstances under which the method might be chosen and the procedure used.

9. Trace the process of pregnancy and childbirth from fertilization through the birth of a child.

10. Name the behavioral components associated with increased risk of cardiovascular disease.

11. Name at least five actions you can take to reduce your risk of contracting caner.

Assessment of Student Learning

In this course, student learning is assessed by in-class examinations, out-of-class papers, and class discussion, and other appropriate assessment strategies.

Learning Environment

The learning environment appropriate for this course is based on the following set of assumptions about you as a college student:

1. As a college student you have the desire and capability of taking responsibility for planning and managing your own learning, with help from other students (by forming study groups), the instructor, and other helpers. It further assumes that what you learn through your own initiative will be learned more effectively than what you learn through imposition by others.

2. You bring with you into this class a rich background of experience in living that is a valuable resource both for your own learning and for the learning of others students in the class.

3. Learning is a process that depends much on the learner. The process can be aided by outside factors and environmental conditions conducive to learning, including the following:

   a. The learning environment if physically comfortable.

b. The learning environment if psychologically comfortable (e.g., warm, supportive, and free of threat).

c. The students experience in living is respected, valued, and utilized as a learning resource.

d. Stress producing activities are held to a minimum.

e. Severe time constraints on the student are held to a minimum.

Course Content

The content of the course includes the following units:

Unit I	Understanding Sexuality
Unit II	Prevention of Disease
Unit III	Psychoactive Drugs

Learning Activities

The learning activities for this course are primarily readings, chosen from the text Core Concepts in Health, Insel/Roth, sixth edition. The readings are organized according to the three units of the course outlined above.

COURSE FRAMEWORK

Unit	Topic	CHAPTERS	TITLES
I	Understanding Sexuality	4	Sex & Your Body
		6	Contraception
		7	Abortion
		8	Pregnancy and Childbirth

		17	Sexually Transmitted Diseases
II	Prevention of Disease	12	Nutrition Facts & Fallacies
		14	Exercise for Health and Performance
		15	Cardiovascular Health
		16	Cancer
III	Psychoactive Drugs	2	Stress
		9	Tobacco
		10	Alcohol
		11	Psychoactive Drugs

UNIT I
Understanding Sexuality

CHAPTER 4

Sex and Your Body

LEARNING OBJECTIVES

As a result of reading Chapter 4 in the textbook, you should be able to do the following:

1. Identify the male and female sexual organs and the functions.

2. Define menopause and describe the physiological and psychological changes that are likely to occur during and after menopause.

3. Write a paragraph stating your opinion on the number of unnecessary hysterectomies performed in the United States and why you think such is the case.

TERMINOLOGY

You should be able to define the following key terms.

gonads _____

ovaries _____

testes _____

sex hormones _____

ova _____

sperm _____

prepuce _____

urethra _____

vagina _____

cervix _____

uterus _____

oviduct _____

scrotum _____

circumcision _____

androgens _____

estrogens _____

progestins _____

testosterone _____

semen _____

epididymis _____

vas deferens _____

prostate gland _____

ejaculatory duct _____

menopause _____

vaginitis _____

endometriosis _____

P.I.D. _____

dysmenorrhea _____

P.M.S. _____

menstruation _____

ovulation _____

SAMPLE TEST QUESTIONS

True or False

T F 1. Undescended testes provide more fertile sperm because they are stored in a bodily environment that is warmer than the normal testicular position.

T F 2. The clitoris is derived during embryonic development from the same type of tissue as the glans of the penis.

T F 3. Men are more vulnerable to genitourinary infections than women.

T F 4. Premenstrual syndrome is primarily an emotional problem without associated physical symptoms.

T F 5. Those who expect to be sexually active into their retirement years will probably be physically incapable of fulfilling their expectations.

Multiple Choice

1. The egg enters the uterus from the:
   a. cervix
   b. urethra
   c. seminal vesicle
   d. oviduct

2. Men will experience a decline in sex drive if they experience a decline in which of the following?
   a. estrogen
   b. testosterone
   c. progesterone
   d. androgen

3. Which of the following is a yeast infection?
   a. vaginitis
   b. candida
   c. giardia
   d. trichomoniasis

4. Which of the following is a term for the absence of menstrual periods?
   a. dysmenorrhea
   b. amenorrhea
   c. uterine cramping
   d. menstrual cramping

5. The prostate gland
   a. produces sperm
   b. produces fluid that transports and nourishes sperm
   c. prevents urine and sperm from being mixed even though they share a common passage
   d. is a highly sensitive structure that plays a part in sexual arousal

6. Puberty is first marked by
   a. the development of differentiated genitalia
   b. an equalization of the cardiovascular capabilities of the sexes
   c. an ability to reproduce
   d. the development of secondary sex characteristics

7. For the postmenopausal woman, intercourse may become painful because:
   a. she is likely to lose her sex drive
   b. menopausal symptoms cause vaginal contractions that create a barrier to penile penetration
   c. a reduction in estrogen production results in reduction in vaginal lubrication
   d. the uterine walls lose their elasticity

Essay

1. What is sexuality ? _____

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. T
3. F
4. F
5. F

Multiple Choice

1. D
2. B
3. B
4. B
5. C
6. D
7. C

Essay

1. Sexuality is a complicated concept involving sexual anatomy, sexual response, sex hormones, and intimate relationships; sexuality develops from both inborn, biological characteristics and acquired behavior. (See page 101 in the textbook)

RELEVANT CONCEPTS

1. The sexual organs of males and females develop from the same structures and fulfill similar functions.

2. Sex differentiation is a process that begins at conception and proceeds, under the direction of hormones, through puberty.

3. Aging has predictable effects on human sexuality for both men and women, although it need not signal an end to sexual pleasure.

4. Most forms of sexual disorders and dysfunctions can be successfully treated.

CHAPTER 6

Contraception

LEARNING OBJECTIVES

As a result of reading Chapter 6 in the textbook, you should be able to do the following:

1. Explain the important issues to be considered when choosing a contraceptive.

2. Describe the correct procedure for using the various types of contraception.

3. Know the risks of oral contraceptive use.

4. Explain why vasectomy is considered preferable to female sterilization.

TERMINOLOGY

You should be able to define the following key terms.

contraception _____

conception _____

STD'S _____

the pill _____

ovulation _____

progesterone _____

estrogen _____

fertility _____

IUD _____

PID _____

condom _____
(male/female)

ejaculation _____

circumcise _____

nonoxynol-9 _____

diaphragm _____

TSS_____

sponge _____

vaginal spermicides _____

douche _____

withdrawal _____

vasectomy _____

tubal sterilization _____

laparoscopy _____

hysterectomy _____

SAMPLE TEST QUESTIONS

True or False

T F 1. There is no proven relationship between taking birth control pills and contracting breast cancer.

T F 2. The theoretical effectiveness of a contraceptive is accurately measured by the number of women who become pregnant while using the contraceptive.

T F 3. Withdrawal is a highly reliable form of contraception.

T F 4. The same medication that is prescribed to prevent conception is also sometimes prescribed to prevent or clear up adolescent acne.

T F 5. The most serious side effect associated with diaphragm use is toxic shock syndrome.

T F 6. The testicles stop producing sperm after the male has been sterilized.

MULTIPLE CHOICE:

1. All of the following are important considerations in selecting a method of contraception except:
   a. the convenience of the method
   b. the cost of maintaining each method
   c. the acceptability of the method on religious grounds
   d. the side effects reported to you by friends

2. Birth control pills are designed to prevent conception by
   a. hampering the movement of the sperm by thickening the mucous in the vagina
   b. possibly changing the lining of the uterus so that in the unlikely event that an egg is fertilized it will not implant in the uterine wall
   c. stopping the female from ovulating
   d. all of the above

3. Full protection provided by birth control pills is achieved
   a. on the date the first pill is taken
   b. at the midpoint of the first cycle that birth control pill are used
   c. after the pills have been used for one month
   d. after the pills have been used for three months

4. The most common reason for failure of condoms is
   a. breakage
   b. carelessness upon withdrawal
   c. taking a chance and not using the condom
   d. porousness of rubber from which condom was made

5. After coitus, the diaphragm
   a. should be left in for six hours unless the woman douches
   b. should be left in for six hours
   c. should be left in for twenty-four hours
   d. may be taken out immediately

ESSAY

1. What are the relevant factors that you need to consider in choosing a contraceptive method?

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. F
3. F
4. T
5. T
6. F

Multiple Choice

1. D
2. D
3. C
4. C
5. B

Essay

1. Issues to be considered include (1) individual health risks of each method. (2) importance of effectiveness in terms of implications of unwanted pregnancy, (3) possible risk of sexually transmissible diseases, (4) convenience and comfort of the method as viewed by each partner, (5) cost and ease of maintaining each method, (6) acceptability in terms of religious or philosophical beliefs.

RELEVANT CONCEPTS

1. The choice of contraceptive method depends on effectiveness, convenience, cost, reversibility, side effects and risk factors, and protection against sexually transmissible diseases as well as the method's acceptability in term of religious beliefs.

2. The oral contraceptive (pill) is a hormonal method of contraception that prevents ovulation, hinders the movement of sperm, and/or affects the uterine lining so that implantation is inhibited.

3. The intrauterine device (IUD) is a small plastic object placed in the uterus to prevent pregnancy. Use of the IUD has greatly declined in the United States because most manufacturers have stopped distribution in the face of increased lawsuits associated with complications experienced by IUD users.

CHAPTER 7

Abortion

LEARNING OBJECTIVES

As a result of reading chapter 4 in the textbook, you should be able to do the following:

1. Identify the age, race, and marital status of women who have abortions performed in California.

2. Describe the procedures of abortion, including circumstances under which the method might be chosen.

3. Name the possible complications, both physical and psychological, that may occur with abortion and complications.

4. Write a one-page essay presenting your personal opinion on the abortion issue.

TERMINOLOGY

You should be able to define the following key terms.

abortion _____

miscarriage _____

trimester _____

amniocentesis _____

RU-486 _____

abortifacients _____

vacuum aspiration _____

dilation and curettage _____

dilation and evacuation _____

saline instillation _____

amniotic fluid _____

cesarean section _____

SAMPLE TEST QUESTIONS

True or False

T F 1. There are fewer illegal abortions being performed now than before 1973.

T F 2. Abortions are equally safe from the eighth to the twenty-fourth week of pregnancy.

T F 3. RU-486 is a reliable abortion pill with relatively few health risks that can be used early in abortion, but is unavailable in this country.

T F 4. The saline instillation method of abortion can result in the solution getting into the patients's circulatory system if the injection is made too quickly.

T F 5. Using a local anesthetic during abortion reduces the health risks to the patient.

Multiple Choice

1. The pro-life position argues that
   a. women ought to have the right to have an abortion under any circumstances
   b. abortion ought to be permitted up to the sixth week of pregnancy
   c. abortion is morally wrong
   d. their position is essentially consistent with the pro-choice position

2. Amniocentesis is a procedure for
   a. diagnosing birth defects
   b. abortion
   c. late abortion
   d. dilating the cervix in preparation for abortion

3. Which of the following statements regarding abortion is true?
   a. More abortions occur among women in their thirties than in any other decade

b. As many married women get abortions as single women
c. Most abortions occur during the first trimester
d. More abortions occur among minorities than among Caucasian women

4. The most common consequence of abortion is
   a. cervical trauma
   b. laceration
   c. uterine perforation
   d. severe cramping

5. A danger sign following abortion is:
   a. bleeding that lasts longer than three weeks
   b. nausea
   c. pain that is perceived to be indigestion
   d. headaches

Essay

1. Women choose to have or not to have an abortion for a wide variety of reasons. Name 3 reasons for each position.

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. T
2. F
3. T
4. F
5. T

Multiple Choice

1. C
2. A
3. C
4. D
5. A

Essay

1. Position for abortion because (1) can't afford child (2) don't want to be single parent (3) child has a birth defect. Position against abortion because (1) life begins at conception (2) strong religious beliefs (3) strong parental support to have child.

RELEVANT CONCEPTS

1. The 1973 Roe vs. Wade Supreme Court case devised new standards to govern abortion decisions. In the first trimester, abortion decisions were left to the judgement of the pregnant woman; in the second trimester, similar rights remained but the state could regulate factors that might protect the health of the woman; in the third trimester, the state could regulate and even prevent all abortions except those considered necessary to preserve the mother's life or health.

2. RU-486, an abortion pill that causes the uterine lining to shed any fertilized eggs, has been used effectively in Europe but is being opposed for approval in the United States by anti-abortion groups.

3. Methods of abortion include menstrual extraction, vacuum aspiration, dilation and curettage, saline instillation, prostaglandins, and hysterotomy.

CHAPTER 8

Pregnancy and Childbirth

LEARNING OBJECTIVES

As a result of reading chapter 8 in the textbook, you should be able to do the following:

1. Discuss the advantages of alternative birth centers, certified nurse-midwives, and prepared childbirth compared with the more traditional physician-attended, hospital birth.

2. Explain why breast feeding is the preferred method of infant feeding.

3. Trace the process of pregnancy and childbirth from fertilization through the birth of a child.

4. Describe the risks associated with prenatal exposure to alcohol, cigarette smoke, and cocaine.

TERMINOLOGY

You should be able to define the following key terms.

ultrasound _____

amniocentesis _____

pregnancy tests _____

endometriosis _____

artificial insemination _____

in vitro fertilization _____

surrogate _____

ectopic pregnancy _____

colostrum _____

placenta _____

labor _____

Rh _____

incompatibilities _____

fetal alcohol syndrome _____

afterbirth _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Amenorrhea is a certain indication that a woman is not pregnant.

T F 2. It is the opinion of most physicians specializing in obstetrics that drugged birth is by far the safest birth procedure for both the mother and the baby.

T F 3. Ultrasound is the only prenatal test the provides reliable information about the unborn infant.

T F 4. One of the risks associated with sexually transmitted diseases in infertility.

T F 5. The colostrum is thin, milk-like fluid secreted by mammary glands around the time of pregnancy.

Multiple Choice

1. The amniotic sac
   a. insulates the embryo
   b. feeds the embryo
   c. keeps poisons in the baby's bloodstream from entering the mother's circulation, or
   d. all of the above

2. Home pregnancy tests are usually percent reliable.
   a. 40-50
   b. 50-75
   c. 85-95
   d. 100

3. Each trimester of pregnancy is approximately weeks long.
   a. ten
   b. eleven
   c. twelve
   d. thirteen

4. The thread like structures that sprout from the blastocyst into the mother's vessels to draw out nourishment are:
   a. chorionic villi
   b. placental attachments
   c. puerperium
   d. teratogenic villi

5. The reason that medical personnel and prospective parents are concerned about the increase in the number of cesarean procedures is because of:
   a. declining health of fertile women,
   b. new evidence of late-life health risks to persons born by cesarean,
   c. the declining number of physicians who are willing to deliver babies, and
   d. the likelihood that many of these procedures are unnecessary.

Essay

1. List the states of human development from conception to birth. Be specific!

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. F
3. F
4. T
5. T

Multiple Choice

1. D
2. C
3. D
4. A
5. D

Essay

1. For answer see pages 218 and 219 in the textbook.

RELEVANT CONCEPTS

1. The medical risks associated with pregnancy are high for teenagers because their bodies are immature, their eating habits are often poor, and adequate prenatal care may be inaccessible.

2. Women over 35 may find it harder to become pregnant and may experience more complications of pregnancy.

3. Breast feeding provides a food best suited to the baby's nutritional needs and digestive capacities as well as antibodies that protect the baby against diseases.

4. A wide variety of childbirth choices are now available to prospective parents. Positive outcomes are most likely if the parents make an informed choice based on what feels most comfortable for them.

5. Ectopic pregnancy, implantation of a fertilized egg in the oviduct or in another location outside the uterus, can be dangerous because it can result in internal bleeding and/or infertility.

6. During the first trimester, when basic body structures are rapidly forming, the fetus is extremely vulnerable to environmental factors that can cause congenital malformations.

CHAPTER 17

Sexually Transmissible Diseases

LEARNING OBJECTIVES

As a result of reading chapter 17 in the textbook, you should be able to do the following:

1. Explain the relationship between the increased use of oral contraceptives and the increased incidence of sexually transmitted diseases.

2. Describe the cause, symptoms, diagnosis, treatment, and consequences of the major sexually transmissible diseases:

3. Explain how the HIV virus is transmitted, identify the high-risk behaviors for AIDS, and name the steps individuals can take to protect themselves.

4. Define pelvic inflammatory disease: describe its causes and consequences.

TERMINOLOGY

You should be able to define the following key terms.

AIDS _____

STD'S _____

immune system _____

helper T-cells _____

suppressor T-cells _____

antibodies _____

hemophiliacs _____

blood transfusions _____

pneumocystis carinii _____

kaposi's sarcoma _____

HIV antibody test _____

AZT _____

syphilis _____

chancres _____

chlamydia _____

PID _____

gonorrhea _____

herpes _____

acyclovir _____

genital warts _____

HPV _____

yeast infection _____

pubic lice _____

congenital syphilis _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Symptoms of latent syphilis include a contagious rash.

T F 2. Chlamydia is the cause of vaginal rash in women.

T F 3. The customary treatment for pelvic inflammatory disease is antibiotics.

T F 4. Recently the drug AZT has been shown to be an effective treatment for genital warts.

T F 5. Birth control pills supply some protection against gonorrhea by changing the acidity of the vagina.

Multiple Choice

1. Intravenous drug abusers will not be safe from HIV infection if they
   a. do not share intravenous needles or syringes,
   b. decontaminate needles and syringes with bleach and water,
   c. boil needles and syringes, or
   d. kick the habit.

2. Which of the following STD can be contracted from a toilet seat?
   a. AIDS
   b. syphilis
   c. gonorrhea
   d. pubic lice

3. Spirochetes cause:
   a. herpes zoster
   b. syphilis
   c. chlamydia
   d. gonorrhea

4. The patient who experiences repeatedly activated herpes infections is most likely to be treated with:
   a. antibody therapy
   b. laser therapy
   c. topical applications for pain relief
   d. acyclovir

5. That part of the blood that acts directly to fight off infection is:
   a. suppressor cells
   b. helper T-cells
   c. hemoglobin
   d. plasma

Essay

1. List the six major sexually transmissible diseases.

_____

_____

_____

_____

SAMPLE TEST QUESTION ANSWER KEY

True and False

1. F
2. F
3. T
4. F
5. T

Multiple Choice

1. C
2. D
3. B
4. D
5. B

Essay

1. AIDS, Syphilis, Chlamydia, Gonorrhea, Herpes, and the Human Papillomavirus.

RELEVANT CONCEPTS

1. The HIV virus is transmissible through the exchange of body fluids including blood, semen, and vaginal fluid. This exchange is most likely to occur during sexual activity, by sharing contaminated needles, and through blood transfusions if the blood supply is contaminated.

2. The HIV virus can also be transmissible from mother to baby during pregnancy and in a small number of cases through breast milk.

3. Syphilis is a serious sexually transmitted disease that, if left untreated, can cause central nervous system damage, paralysis, mental degeneration, and death.

4. Chlamydia is the most common STD among white heterosexual persons. The disease is especially dangerous for women because the symptoms are often not noticed and, if chlamydia is undetected for two months or more, it can lead to pelvic inflammatory disease and permanent infertility.

5. Gonorrhea, if untreated, can cause pelvic inflammatory disease and infertility in women, epididymitis and sterility in men, dermatitis, and arthritis. Symptoms for men usually include a noticeable yellowish discharge, but gonorrhea is often asymptomatic in women.

6. Pelvic inflammatory disease, usually a result of untreated chlamydia or gonorrhea, is the major cause of infertility in young women.

7. Genital warts, which are caused by a virus and are a highly contagious STD, have been associated with cervical cancer.

UNIT II
PREVENTION OF DISEASE

CHAPTER 12

Nutrition Facts and Fallacies

LEARNING OBJECTIVES

As a result of reading chapter 12 in the textbook, you should be able to do the following:

1. Differentiate between saturated and unsaturated fat and identify sources of each.

2. Explain the purpose of hydrogenation and describe the effect this process has on food.

3. Define the role of dietary fiber in the diet; differentiate between soluble and insoluble fiber and identify sources of each.

4. Understand the role vitamins have in promoting chemical reactions within the body.

5. Correctly interpret a food label.

6. Discuss the relationship between osteoporosis and calcium and name several food sources of dietary calcium.

7. Name at least five simple ways to reduce the amount of fat in the diet.

TERMINOLOGY

You should be able to define the following terms.

nutrition _____

osteoporosis _____

calorie _____

essential amino acids _____

vegetarians _____

fat-soluble vitamins _____

saturated _____

monounsaturated _____

polyunsaturated _____

vitamins _____

water-soluble vitamins _____

minerals _____

RDA _____

moderation _____

variety _____

hydrogenation _____

dietary fiber _____

insoluble fibers _____

soluble fibers _____

enriched _____

fortified _____

natural _____

organic _____

hair analysis _____

SAMPLE TEST QUESTIONS

True and False

T F 1. The potential fuel in food is expressed in kilometers.

T F 2. The body's main structural components are made up of calcium.

T F 3. Another name for fats is lipids.

T F 4. The primary source of energy for the body during heavy exercise is fat.

T F 5. Americans should increase their intake of carbohydrates.

Multiple Choice

1. To prevent osteoporosis, all of the following behaviors are recommended except
   a. quitting smoking
   b. regular exercise
   c. limiting sun exposure
   d. restricting alcohol intake

2. Ways to reduce fat in the diet include all of the following except
   a. steam, boil or bake vegetables
   b. replace yogurt with sour cream in recipes
   c. choose learn cuts of meat and trim away visible fat
   d. eat a vegetarian main dish at least once a week

3. The best method of preserving nutrients in vegetables and fruits is
   a. refrigeration
   b. canning
   c. boiling
   d. freezing

4. To reduce nutrient loss from vegetables, all of the following practices are true except
   a. soak vegetables in water
   b. cook vegetables in their skins
   c. bake vegetables
   d. steam vegetables

5. To protect yourself from pesticide residues in food, all of the following advice is appropriate except
   a. rinse and scrub fruits and vegetables with a brush
   b. remove outer leaves with leafy vegetables
   c. trim fat from meat and poultry
   d. eat larger fish

Essay

1. What are the nutritional components of a healthy diet?

_____

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. F
3. T
4. F
5. T

Multiple Choice

1. C
2. B
3. D
4. A
5. D

Essay

1. To function at its best the body needs 45 essential nutrients in specific proportions from the food they eat. They include: proteins, fats, carbohydrates, fiber, vitamins (in small amounts), and minerals.

RELEVANT CONCEPTS

1. The human body requires about forty-five essential nutrients that are classified into six groups based on the most plentiful nutrient in the food substance. The six nutrient groups are proteins, fats, carbohydrates, vitamins, minerals, and water. Dietary fiber is also considered to be an important substance.

2. The human body is about 60 percent water. Although we can live up to fifty days without food, we can live only a few days without water.

3. Alcohol is not an essential nutrient and has no nutritional value, but it is a major energy source in the American diet.

4. Americans need to reduce consumption of fats, especially saturated fats. Dietary intake should be limited to 30 percent of total kcalories. Fats provide a concentrated source of energy and help insulate the body and cushion organs.

5. Dietary fiber includes plant substances difficult or impossible for humans to digest. Fiber may prevent rectal and colon cancer and help lower cholesterol levels. Fibers are classified as soluble and insoluble.

6. Vitamins are organic substances required in very small amounts to promote specific chemical reactions within living cells. A substance is considered a vitamin only if a lack of it causes a specific disease that is cured where the substance is resupplied. Humans need thirteen vitamins.

CHAPTER 14

Exercise for Health, Fitness, and Performance

LEARNING OBJECTIVES

As a result of reading chapter 14 in the textbook, you should be able to do the following:

1. List the overall health benefits of regular exercise.

2. Differentiate between aerobic and anaerobic exercise and name at least six types of aerobic exercise.

3. Describe the positive and negative effects of the use of anabolic steroids.

TERMINOLOGY

You should be able to define the following terms.

exercise _____

physical fitness _____

aerobic exercise _____

anaerobic exercise _____

metabolism _____

osteoporosis _____

anabolic steroids _____

synovial fluid _____

glycogen _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Exercise increases the efficiency of the body's metabolism.

T F 2. Anabolic steroid use increases both size and strength of muscle.

T F 3. A person can achieve a high level of cardiovascular fitness with two exercise bouts per week evenly spaced.

T F 4. The most crucial factor in attaining the training heart rate is the intensity of the workout.

T F 5. The best fluid replacement is cold water or diluted carbohydrate drinks.

Multiple Choice

1. Exercise that achieves the target heart rate for an extended period of time is
   a. anaerobic
   b. aerobic
   c. resistance
   d. hypokinetic

2. The natural high that a person achieves as a result of vigorous physical activity is the result of the release of
   a. oxygen
   b. endorphins
   c. hypnotics
   d. narcotics

3. Maintaining strength is best achieved by _____ exercise.
   a. aerobic
   b. anaerobic
   c. resistance
   d. interval

4. The least beneficial exercise for cardiorespiratory endurance is
   a. jogging
   b. cycling
   c. juggling
   d. interval training

5. Cardiovascular fitness requires at least _____ bouts of exercise per week.
   a. two
   b. three
   c. four
   d. seven

Essay

1. In planning a personal exercise program list 5 factors that should be considered.

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. T
2. T
3. F
4. T
5. T

Multiple Choice

1. B
2. B
3. C
4. C
5. B

Essay

1. The five factors that should be considered are: (1) Set goals, (2) Select a sport or activity, (3) Make a commitment, (4) Begin and maintain your program, (5) Record and assess your progress. See page 401-403 in textbook.

RELEVANT CONCEPTS

1. Exercise may be the single most effective action you can take to improve your health. It helps control weight, relieves stress, boosts the immune system, strengthens the cardiorespiratory and skeletal systems, protects against heart disease, cancer, and perhaps even premature death.

2. The body is made to work best when it is active. Left unchallenged bones lose their density, joints

stiffen, muscles become weak, and body chemistry and systems begin to degenerate. To truly be well, you must be active.

3. Exercise has social, psychological, and emotional benefits. Positive feelings associated with exercise have a physiological basis in hormones and body chemicals. Endorphines, secreted by the brain during exercise, help decrease pain, produce euphoria, and suppress fatigue.

4. Aerobic exercise, which stress a large portion of the body's muscle mass for a prolonged period of time, are best for improving cardiorespiratory endurance. Frequency, duration, and intensity of the exercise are dimensions of the training that all need consideration when planning an optimal workout schedule.

5. In any exercise program, it is important to warm up before beginning the activity and cool down afterward.

6. A desired level of fitness can be maintained by exercising three to five times per week at a consistent intensity. Ways to stay motivated include having specific goals, enjoying the activity, and maintaining interest by varying the program.

7. Walking, if done briskly enough and long enough, can be as effective as other endurance exercises for developing a high level of fitness.

8. Anabolic steroids are drugs widely used by athletes to improve strength, performance, and appearance. Although users do experience improvements, there are dangerous side effects, including acne, testicular atrophy, damage to the immune system, liver damage, high blood pressure, and other problems.

CHAPTER 15

Cardiovascular Health

LEARNING OBJECTIVES

As a result of reading chapter 15 in the textbook, you should be able to do the following:

1. Name the behavioral components associated with increased risk for cardiovascular disease.

2. Describe the process of atherosclerosis and identify possible results of this process.

3. Discuss the relationship between smoking and cardiovascular disease.

4. Define hypertension; describe the risks and the treatments associated with the condition.

5. Name the signals of a possible heart attack and describe the action you would take if you observed these symptoms in someone.

8. Discuss the relationship between personality type and CVD.

7. Name the steps that can be taken in early life to improve the chances of avoiding CVD in middle and later life.

TERMINOLOGY

You should be able to define the following key terms.

cardiovascular disease _____

endocardium _____

myocardium _____

systole _____

diastole _____

sickle-cell anemia _____

stroke _____

heart attack _____

diabetes _____

cholesterol _____

hypertension _____

atherosclerosis _____

arteriosclerosis _____

saturated fat _____

blood cholesterol _____

monounsaturated fats _____

polyunsaturated fats _____

retina _____

blood pressure _____

myocardial infarction _____

CPR _____

electroencephalogram _____

digitalis _____

rheumatic heart disease _____

congenital heart disease _____

strep throat _____

SAMPLE TEST QUESTIONS

True and False

T F 1. The type of fats that needs to be reduced in the American diet is unsaturated fats.

T F 2. Digitalis is used to treat congestive heart failure.

T F 3. Fat contains 7 calories per gram.

T F 4. The element of the Type-A personality that seems to put a person at elevated risk for cardiovascular disease is competitiveness.

T F 5. Atherosclerosis usually first begins to develop after high school.

Multiple Choice

1. Myocardium is another name for:
   a. circulatory system
   b. valves
   c. heart muscle
   d. elastic tissue in the major blood vessels

2. Arteriosclerosis is:
   a. fatty buildup in the arteries
   b. an aneurism
   c hardening of the arteries
   d. the same as atherosclerosis

3. The factor that contributes least to risk of atherosclerosis is:
   a. age
   b. hypertension
   c. smoking
   d. elevated cholesterol

4. Which of the following systolic blood pressure readings would indicate the patient may have hypertension?
   a. 60
   b. 90
   c. 120
   d. 150

5. The first signs of heart attack usually occur within of the onset of the attack.
   a. two minutes
   b. two hours
   c. two days
   d. two weeks

Essay

1. Who is at risk for cardiovascular disease?

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. T
3. F
4. F
5. F

Multiple Choice

1. C
2. D
3. A
4. D
5. B

Essay

1. (Gender) Men have a greater risk of heart attack and stroke that women; Afro-Americans have twice the rate of CVD as whites. (Genetic factors) High blood cholesterol & abnormal clotting tendencies are involved. Overweight or obese people and diabetics are at risk. (Behavioral) Hypertension, high blood cholesterol, cigarette smoking, sedentary lifestyle, and personality traits like hostility.

RELEVANT CONCEPTS

1. The total volume of the body's blood, about 5 quarts in a 150-pound man, circulates in about one minute, with exchange of nutrients taking place between the capillaries and the tissues.

2. Men have a greater risk of heart attack than women; blacks have a higher risk than whites. Also at increased risk are people over 65 years of age, people who are obese, and diabetics.

3. Behavioral components including sedentary lifestyle, personality traits like hostility, cigarette smoking, and high cholesterol increase the risk of CVD.

4. Atherosclerosis is the process whereby arteries become narrowed by deposits of fat, cholesterol, and other substances. Results of this process include hypertension, heart attack, anginas pectoris, and stroke.

5. The single most important risk factor for atherosclerosis is smoking. Cigarette smokers have more than twice the risk of heart attack than nonsmokers have and are more likely to die suddenly immediately following a heart attack. Passive smoke in high concentrations is also implicated in the development of atherosclerosis.

6. Cholesterol is a fat-like substance that is essential to the normal functioning of the body. High blood cholesterol, that is a reading of over 240 mg/dl, increases the risk of heart attack. Low-density lipoproteins (LDL) carries cholesterol out to the periphery of the body, where it may be deposited and build up on artery walls. High-density lipoproteins (HDL) is considered the blood cholesterol because it draws cholesterol out of the walls and returns it to the liver for recycling.

7. An estimated 60 million Americans have high blood pressure, often called the "silent killer" because there are usually no symptoms, even though damage to vital organs is occurring.

8. High blood pressure in adults is defined as systolic pressure of 140 mm/hg or higher and diastolic pressure of 90 mm/hg or higher.

9. One of every 125 children in the United States is born with a congenital heart defect. Rheumatic heart disease, a result of rheumatic fever, also contributes to the incidence of heart disease in children.

10. Hostility and cynicism are the characteristics of the type A personality most associated with CVD.

11. People need to take steps beginning when they are found to improve chances of avoiding CVD in middle age. These steps include having blood pressure checked regularly, monitored blood cholesterol, quitting smoking, following a prudent diet, maintaining an ideal weight, exercising regularly, managing stress effectively, controlling medical problems, and knowing your own risk factors, both personal and familial.

CHAPTER 16

Cancer: A Closer Look

LEARNING OBJECTIVES

As a result of reading chapter 16 in the textbook, you should be able to do the following:

1. Define the term cancer.

2. Discuss the various methods of early detection and explain the significance of early detection as it relates to survival rates.

3. Differentiate between normal cells and cancer cells.

4. Name at least five actions you can take to reduce your risk of contracting cancer.

5. Describe how breast self-examination is done.

6. Describe how testicular self-examination is done.

7. Explain possible reasons that the incidence of skin cancer has increased in recent years and describe preventative strategies for avoiding skin cancer.

TERMINOLOGY

You should be able to define the following key terms.

cancer _____

benign _____

malignant _____

metastasis _____

carcinomas _____

leukemia _____

immune system _____

chemotherapy _____

T F 4. Kaposi's sarcoma is a type of cancer associated with HIV (AIDS) infection.

T F 5. The majority of people diagnosed with lung cancer or colorectal cancer die before five years have passed, regardless of how early the diagnosis occurs.

Multiple Choice

1. In a radical mastectomy, surgeons cut away the:
   a. tumor only
   b. quadrant of breast that the tumor is in
   c. entire breast
   d. entire breast and near-by lymph nodes

2. Mammography is recommended annually for women over age:
   a. 20
   b. 30
   c. 40
   d. 50

3. Breast self-examination is recommended for all women over age:
   a. 20
   b. 30
   c. 40
   d. 50

4. Sigmoidoscopy is recommended for individuals over age:
   a. 20
   b. 30
   c. 40
   d. 50

5. All of the following are associated with cancer except:
   a. high fiber diet
   b. high fat diet
   c. high alcohol consumption
   d. exposure to smog

Essay

1. List six causes of cancer.

---

colon and rectal cancer _____

menopause _____

osteoporosis _____

breast self-examination _____

mammogram _____

lumpectomy _____

mastectomy _____

ovarian cancer _____

pap smear _____

prostate cancer _____

oral cancer _____

skin cancer _____

malignant melanoma _____

squamous cell carcinoma _____

undescended testicles _____

kaposi's sarcoma _____

carcinogens _____

interferon _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Workers who have been exposed to asbestos are at elevated risk for leukemia.

T F 2. The leading cause of cancer death in men is lung cancer.

T F 3. Rectal examination is an important screening examination for cancer.

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. T
3. T
4. T
5. F

Multiple Choice

1. D
2. D
3. A
4. D
5. A

Essay

1. Five factors that have been identified as causing cancer include: (1) food, (2) high fat diets, (3) high alcohol intake, (4) inhaled carcinogens, (5) radiation (6) genetics.

RELEVANT CONCEPTS

1. Cancer is an abnormal and uncontrollable growth of cells or tissue that leads to death if untreated.

2. A malignant tumor can invade surroundings structure and spread--metastasize--to distant sites via the blood and lymphatic system, producing additional tumors throughout the body.

3. Colorectal cancer, the second most common cancer in the United States, is clearly linked to both diet and heredity.

4. About one in nine women in the United States develop breast cancer. The American Cancer Society recommends monthly self-examination, a clinical examination every one to three years, and regular mammograms after 40.

5. Because use of Pap smears has become nearly universal, the death rate from cervical cancer has dropped by 70 percent in the past forty years.

6. Prostate cancer is the most common cancer in men and is chiefly a disease of aging.

7. The incidence of skin cancer has increased dramatically in recent year. Depletion of the ozone layer has been implicated in the increased incidence of skin cancer; using sunscreen for protection against ultraviolet rays continues to be of primary importance.

UNIT III
PSYCHOACTIVE DRUGS

CHAPTER 2

Stress: The Constant Challenge

LEARNING OBJECTIVES

As a result of reading chapter 2 in the textbook, you should be able to do the following:

1. Describe the physiological process that occurs when an individual experiences stress.

2. List the negative consequences associated with constant mobilization of the stress response.

3. Discuss the relationships among personality type, responses to stress, and the potential for disease.

4. Discuss the "three Cs" of health associated with Kobasa's "hardy personality."

5. Identify strategies for managing time more effectively and describe how effective time management can help reduce stress.

6. Explain the relationship between exercise and stress.

7. Discuss the relationship between food nutrition and stress.

TERMINOLOGY

You should be able to define the following key terms.

stress _____

eustress _____

distress _____

stressors _____

stress response _____

homeostasis _____

general adaptation syndrome _____

alarm _____

resistance _____

exhaustion _____

sympathetic branch _____

parasympathetic branch _____

diseases of adaptation _____

immune system _____

Type A personality _____

Type B personality _____

Type C personality _____

imagery _____

visualization _____

endorphins _____

neurotransmitters _____

dopamine _____

caffeine _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Stress in one's life is not healthy.

T F 2. High-potency formulations of vitamins C, E, and B-complex are useful in combatting psychological or emotional stress.

T F 3. An adaptive reaction is the body's attempt to restore homeostasis.

T F 4. Cortisol is a natural opiate produced in the brain.

T F 5. The most threatening state of the general adaptation syndrome is exhaustion.

T F 6. The "fear hormone" is epinephrine.

Multiple Choice

1. Which of the following is most characteristic of the Type A personality?
   a. walks slowly
   b. does not wear a watch
   c. does homework while eating dinner
   d. stops car while driving to let pedestrians pass

2. Eustress is
   a. getting a bad grade
   b. winning the lottery
   c. having your parents get a divorce
   d. homeostasis

3. The potentially disease-related element of the Type A Personality is
   a. competitiveness
   b. hostility
   c. need to control
   d. impatience

4. Elements of the "hardy" personality include all of the following except
   a. challenge
   b. commitment
   c. callousness
   d. control

5. The most highly ranked event of the Social Readjustment Rating Scale is
   a. pregnancy
   b. marriage
   c. change in financial status
   d. outstanding personal achievement

Essay

1. What is stress? Include discussion on: Eustress, Distress, Homeostasis, and GAS.

_____

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. T
2. F
3. T
4. F
5. T
6. T

Multiple Choice

1. C
2. B
3. B
4. C
5. B

Essay

1. Stress is the body's total biological response to any demand. Eustress is pleasant and beneficial; distress is unpleasant and can have negative effects. GAS is controlled by the autonomic nervous system; the sympathetic and parasympathetic branches. Their are a number of states of GAS; the alarm, resistance, and exhaustion states.

RELEVANT CONCEPTS

1. The crucial factor in stressful situations is how the individual responds: in positive, life-enhancing ways or in negative, counterproductive ways.

2. The body attempts to maintain homeostasis; stress is an internal or external disruption in the body's steady state.

3. The body reacts to stress in a three-stage, predictable response that Selye termed the general adaptation syndrome (GAS).

4. The type of personality an individual has affects the responses to stress and can affect the risk of heart and other diseases.

5. Good nutrition is a positive factor that modulates emotional and behavioral responses to stress.

6. Laughter promotes physiological responses that lead to a relaxation response.

CHAPTER 9

Tobacco

LEARNING OBJECTIVES

As a result of reading chapter 9 in the textbook, you should be able to do the following:

1. Name and describe the major health problems and diseases for smokers.

2. Discuss the effects of tobacco smoke on non smokers.

3. Describe the effects of maternal smoking on the fetus.

4. Describe three approaches to smoking cessation.

TERMINOLOGY

You should be able to define the following terms.

nicotine _____

addiction _____

withdrawal symptoms _____

"cold turkey" _____

smokeless tobacco _____

carcinogens _____

respiratory cilia _____

carbon monoxide _____

nicotine poisoning _____

coronary heart disease _____

atherosclerosis _____

lung cancer _____

emphysema _____

chronic bronchitis _____

sidestream smoke _____

mainstream smoke _____

carboxyhemoglobin _____

asthma _____

sudden infant death syndrome _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Cigarettes with low tar and nicotine have reduced the incidence of lung cancer among smokers.

T F 2. Mainstream smoke is less dangerous to smokers than the sidestream smoke to which nonsmokers are exposed.

T F 3. People usually begin smoking for the pleasure of it.

T F 4. It is not uncommon for tobacco users to be users of other psychoactive drugs.

T F 5. Smoking is the primary cause of emphysema.

Multiple Choice

1. Smokers who change to low-tar cigarettes are likely to
   a. puff less frequently
   b. inhale less deeply
   c. smoke less of each cigarette
   d. smoke more cigarettes

2. Which of the following is most often true of smokers?
   a. They are less likely to drink alcohol than nonsmokers
   b. They are more likely to drink coffee than nonsmokers

c. They are less likely to use psychoactive drugs than nonsmokers
d. They less frequently experience hypertension than nonsmokers

3. Which of the following is the most likely reason that young teens start smoking?
   a. addiction
   b. dependence
   c. pleasure
   d. curiosity

4. Which of the following is a symptom of nicotine poisoning?
   a. dizziness
   b. faintness
   c. rapid pulse
   d. all of the above

5. The most wide spread cause of death among cigarette smokers is
   a. coronary heart disease
   b. lung cancer
   c. pancreatic cancer
   d. cancer of the thoracic cavity

Essay

1. How can a tobacco user quit?

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. F
3. F
4. T
5. T

Multiple Choice

1. D
2. B
3. D
4. D
5. A

Essay

1. Most smokers quit on their own; however, some smokers benefit from stop-smoking programs. Learning the facts about smoking isn't enough because the addictive powers of nicotine are overwhelming. Quitting is a long-term process that must deal with reinforcers.

RELEVANT CONCEPTS

1. According to the Surgeon General, smoking is the leading preventable cause of death in the United States. Smoking causes more ill health than any other single behavior or combination of behaviors.

2. Regular tobacco use is not just a psychological habit but also a matter of physical dependence on nicotine. Addicted tobacco users must keep a continuous amount of nicotine circulating in the blood and going to the brain. If that amount falls below a certain level, they experience withdrawal symptoms.

3. The use of smokeless tobacco-has increased dramatically among young men and women.

4. Tobacco smoke is made up of particles of several hundred different chemicals, many of which are carcinogenic.

5. Nicotine is the predominant psychoactive drug in tobacco. Nicotine is absorbed in the lung tissue and is transported throughout the body in the blood in a matter of only a few seconds. Immediate effects include increased blood pressure and heart rate.

6. Symptoms of nicotine poisoning are often experienced by beginning smokers. These symptoms include dizziness, faintness, rapid pulse, cold, clammy skin, nausea, vomiting, and diarrhea.

7. Nonsmokers are also at risk from both the sidestream smoke and mainstream smoke of smokers who share their spaces. Babies and young children suffer increased effects because they breathe faster than adults.

8. Smoking during pregnancy can seriously harm both the mother and the unborn child. Harmful effects include increased risk of miscarriage, stillbirth, congenital abnormalities, premature birth, and most likely low birth weight. Laughter promotes physiological responses that lead to a relaxation response.

CHAPTER 10

The Responsible Use of Alcohol

LEARNING OBJECTIVES

As a result of reading chapter 10 in the textbook, you should be able to do the following:

1. Define the term blood alcohol concentration and describe the expected effects of concentrations of .05 percent, .1 percent, .2 percent, .35 percent and over .35 percent.

2. Describe the effects of chronic alcohol use.

3. Discuss the risks of drinking alcohol during pregnancy.

4. Name the warning signs of alcohol abuse.

5. Compare the severity of the alcohol problem in the United States with other types of drugs.

6. Describe common behaviors of an "enabler."

7. Describe the likely effects of growing up in an alcoholic home.

TERMINOLOGY

You should be able to define the following terms.

psychoactive drugs _____

ethyl alcohol _____

methanol _____

BAC _____

cirrhosis of the liver _____

fetal alcohol syndrome _____

addiction _____

denial _____

withdrawal symptoms _____

hallucinations _____

disulfiram _____

enabling _____

codependent _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Alcohol is a depressant.

T F 2. People get more and more intoxicated as long as they are metabolizing alcohol faster than they are drinking it.

T F 3. The average life expectancy of nondrinkers and moderate drinkers is greater than for heavy drinkers.

T F 4. Data does indicate a relationship between alcohol consumption and some types of cancers.

T F 5. Drunken driving is alcohol abuse.

Multiple Choice

1. The disease most closely associated with alcohol abuse is
   a. cirrhosis
   b. glaucoma
   c. gout
   d. hypertension

2. The best way to reduce the intoxicating effects of alcohol is to
   a. drink at a steady rate
   b. space ones drinks
   c. drink on an empty stomach
   d. drink a 50 proof beverage in stead of a 40 proof beverage

3. In four states the blood alcohol level that defines a person as legally drunk is .08 percent. In almost all other states the blood alcohol level that defines a person as legally drunk is
   a. .05
   b. .10
   c. .12
   d. .15

4. All other things being equal, which of the following people is going to get intoxicated most quickly?
   a. 200 lb. male
   b. 150 lb. female
   c. 150 lb. male
   d. 125 lb. female

5. What percentage of alcoholics overcome their drinking problems by themselves?
   a. none
   b. 5 percent
   c. 10 percent
   d. 25 Percent

Essay

1. Describe the effects of alcohol misuse on the individual, family, and society.

_____

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. T
2. F
3. T
4. T
5. T

Multiple Choice

1. A
2. B
3. B
4. D
5. D

Essay

1. See pages 266 and 267 in the textbook.

RELEVANT CONCEPTS

1. Women become intoxicated more quickly than men because their stomachs have less of the enzyme that metabolizes alcohol. Thus, more of the alcohol goes directly through the stomach wall into the blood stream. Additionally, because alcohol tend to become less concentrated in fatty tissues (women have a higher percentage of body fat than men at a given weight), more alcohol remains in the blood stream in women than in men.

2. A small percentage of alcohol is not metabolized by the liver but excreted unchanged via the lungs and kidneys. This is the basis for breath and urine analyses to determine alcohol levels.

3. Alcohol ingested by a pregnant woman crosses the placenta into the circulation of the fetus. Women who drink alcohol are putting their babies at risk for fetal alcohol syndrome (FAS), a collection of serious birth defects. Since no safe level of alcohol has been identified for pregnant women, abstinence is the safest course.

4. There are four common patterns of alcohol abuse: regular daily intake of large amounts, regular heavy drinking limited to weekends, long periods of sobriety interspersed with binges, and heavy drinking limited to periods of stress.

5. When alcoholics stop or reduce alcohol intake, withdrawal symptoms will appear. A severe withdrawal reaction is known as the DTs, which is characterized by disorientation, confusion, and hallucinations.

6. Alcohol remains the number one drug problem in the United States, despite media attention focused on other

drugs. Alcohol abuse causes more social problems than all other forms of drug abuse combined.

7. Persons associated with an alcoholic need to be careful that they do not become an enabler, that is, someone who perhaps unknowingly allows another to continue excessive use of alcohol.

8. One-half of all traffic fatalities are associated with alcohol use, and one-third of all alcohol-related accidents involve drivers between the ages of 16 and 24.

9. Millions of people grow up in alcoholic homes, learning methods of behavior that do not support healthy development. Today the special problems and needs of children of alcoholics (including adult children of alcoholics) are recognized. Support groups and family therapy provide help.

CHAPTER 11

The Use and Abuse of Psychoactive Drugs

LEARNING OBJECTIVES

As a result of reading this chapter in the textbook, you should be able to do the following:

1. Differentiate between drug misuse and drug abuse.

2. Discuss reasons that people use and abuse drugs.

3. Define the dose-response function and the time action function and explain how these functions affect the drug effect.

4. Explain the relationship between intravenous drug use and AIDS.

5. Name at least five common sources of caffeine and describe the effects of caffeine on the body.

6. State your opinion regarding who, if anyone, should be subjected to mandatory drug testing. Defend your position.

TERMINOLOGY

You should be able to define the following key terms.

psychoactive drugs _____

pharmacology _____

withdrawal symptoms _____

tolerance _____

chipping _____

codeine _____

depressants _____

marijuana _____

psychedelics _____

barbiturates _____

tranquilizers _____

intravenous _____

sterilization _____

biochemical states _____

placebo effect _____

euphoria _____

methadone _____

endorphines _____

designer drugs _____

diazepam _____

seizures _____

overdose _____

DTs _____

convulsions _____

cocaine _____

amphetamine _____

nicotine _____

methamphetamine _____

"free-basing" _____

crack _____

depression _____

methylphenidate _____

psychosis _____

paranoid _____

cannabis sativa _____

THC _____

hashish _____

LSD _____

flashbacks _____

PCP _____

manic-depressive _____

AA _____

Narcotics Anonymous _____

Coke Enders _____

SAMPLE TEST QUESTIONS

True and False

T F 1. Dependence is not related to tolerance.

T F 2. Drug dependence is exclusively a physical experience.

T F 3. Cocaine is a central nervous system stimulant.

T F 4. Caffeine stimulates hunger by reducing gastric secretions.

T F 5. Marijuana is a drug for which a regular user is likely to develop a big degree of tolerance.

Multiple Choice

1. The most likely physical reaction to amphetamine ingestion is
   a. lethargy
   b. fatigue
   c. boredom
   d. alertness

2. Cocaine:
   a. affects the body like alcohol
   b. affects the body like amphetamines, but for a longer period of time
   c. affects the body like hallucinogens
   d. has a more intense effect than amphetamines

3. All of the following are definitive of drug abuse except:
   a. taking a drug that causes physical damage
   b. taking a drug in a way that was not intended
   c. using a drug that impairs the users ability to function
   d. using a drug that triggers behavior that is harmful to others

4. Opiates:
   a. relieve pain
   b. stimulate activity
   c. induce alertness
   d. do all the above

5. Central nervous system depressants:
   a. "levels" the person's mood
   b. induces anxiety
   c. speeds nerve activity
   d. impairs muscle coordination

Essay

1. List the reasons for drug use, abuse, and dependence.

_____

_____

_____

_____

_____

SAMPLE TEST QUESTIONS ANSWER KEY

True and False

1. F
2. F
3. T

4. F
5. F

Multiple Choice

1. D
2. D
3. B
4. A
5. D

Essay

1. Reasons for using drugs include the lure of the illicit; curiosity; rebellion; peer pressure; and the desire to alter one's mood or escape boredom, anxiety, depression, or other psychological problems. Drug misuse involves causing physical damage to the user, or harm to others. Drug dependence involved a craving for the mood changes that a drug provides.

RELEVANT CONCEPTS

1. A psychoactive drug is one that alters a person's sensations, feelings, thoughts, or the functions of the nervous system.

2. Drug dependence can be either physical or psychological. Physical dependence is characterized by withdrawal symptoms when the user tries to give up the drug or cut back. Psychological dependence involves a craving for the mood changes that a drug provides and is strongly influenced by social factors.

3. The effects of a drug on any individual depend on drug factors, user factors, psychological, and social factors.

4. Drugs can be ingested, inhaled, injected, or absorbed.

5. Taking any drug during pregnancy can be risky or even devastating to fetal development. A current example is the alarming number of babies being born who were exposed to cocaine before birth. Cocaine affected babies often experience withdrawal after birth and show multiple

developmental and medical problems as they get older.

6. Opiates relieve pain, cause drowsiness, and induce euphoria; they include opium, morphine, heroin, methadone, and codeine.

7. Depressants slow down overall activity of the nerves; examples are barbiturates, tranquilizers, and alcohol. Physical dependence is possible and withdrawal is severe.

8. Stimulants speed up the activity of the nerves, causing acceleration of heart rate, rise in bold pressure, and an increase in gastric and adrenal secretions. Cocaine, crack, and amphetamines are examples of stimulants. Use can lead to tolerance and psychological dependence is associated with continued use.

9. Caffeine, a stimulant found in many beverages, produces greater alertness and a sense of well-being, but may cause nervousness, irritability, and disturbed sleep. Children are especially vulnerable to the effects of caffeine and for some women, the drug aggravates premenstrual syndrome.

10. A number of drugs are useful for treating physical and mental disorders. Antipsychotic drugs, antianxiety drugs, and antidepressants are all prescribed for various difficulties. The risk of addiction should always be a concern and many time physicians and patients have relied excessively on them when appropriate coping techniques could have been learned instead.

11. Professional programs for treatment of drug addiction are usually drug substitution programs or programs based in treatment centers. Neither method has been consistently successful over the long term. Some nonprofessional self-help groups, such as Alcoholics Anonymous, appear to be effective for some people.

Instructional Resource

Required Text

Insel, Paul M., Roth, Walton T., Core Concepts in Health. Mountain View: Mayfield Publishing Co., 1991.

APPENDIX D

Suggestions to Modify Health Science Curricula

NOTES - M. Rasler Project — Media Coordinator's Desk

Potential Uses of Mediated Instruction: - Greg Gregory

1. From HEALTH SCIENCE STUDY GUIDE by M. Rasler
   - 1.1 Interactive Hypercard Stack
   - 1.11 Configure sample tests in Study Guide on hypercard stacks with various pathways through the stacks based on right & wrong answers.
   - 1.12 This will be effective with T/F, Multiple Choice, Definition, & short essay answers only - long essay must be handled by instructor.
   - 1.13 Since Study Guide itself seems to be a behaviorally-programmed printed text, it should provide the structure for the Hypercard stack without too much additional work. Configuring the pathways through the stacks will be more of a challenge - should begin with (at least) a schematic flow chart - perhaps a detailed one would be appropriate before any programming takes place.
   - 1.14 Probably a good idea to include the "Learning Objectives" as part of the material to be learned in the tests to make sure the students know what they are aiming for.

2. For CLASSROOM PRESENTATIONS, other materials, etc.
   - 2.1 Investigate if there are any health-science videodiscs available to re-purpose (hypercard-stack controlled, etc.) for teaching the material.
   - 2.2 Are any companion disc, CD-ROM, videodisc, or videotape materials available with the textbook selected for the course?
     Any materials available that could be re-purposed?
   - 2.3 Actual live or edited videotaping for this course could be:
   - 2.31 Important lectures/demonstrations to be made available in the LRC for your students.
   - 2.32 Any "mini-module" lessons that you want to make available to your students in the LRC for their independent study, extra credit, etc.
   - 2.33 Any off-campus material that you want to videotape andbring on-site as a video demonstration in your classroom (ie: clinic tours, interviews, etc. - Note that some of these may be available from Faith on a rental or borrow basis - check with her for available pre-produced titles.

APPENDIX E

Expert Evaluations of MTDLP

Clair Daughtry, Program Manager of the Engineering ITS system at the University of California, Davis, made the following comments:

I think your MTDLP for FLC is excellent. The only suggestion I would offer pertains to the section titled,

Student Access to Course Materials

Point number one:

You stated that video tapes will be made available at community libraries or other off-campus sites to accommodate students who cannot receive a broadcast or who miss broadcasts.

In my experience distributing tapes to students as you have suggested is too expensive, takes a lot of staff time, and drives up the expense of the program. It was a logistical nightmare for my staff. I think it is reasonable to assume that college students have a VCR or can have a friend to record a missed program. Good Luck! Please keep in touch.

Charles Raley, Manager of Instruction and Media Resource Department at UCD, made the following comments:

Introduction:

Change the word afforded to given to

Television:

Insert Sacramento Cable between on and Channel 21

Computer Conference:

You state that the modem can connect your computer to the mainframe. This is not necessarily true. How about the Bulletin Board?

Conference Call:

Perhaps the term "audioconference" would be better than interactive sessions.

Video Conference: (One Way Video, 2 Way Audio)

I suggest this rewrite: Students may join together to take distance education classes at selected locations in the Sacramento area in especially equipped classrooms which are electronically attached to the location of the instructor, using video technology, with cameras and monitors. A special camera allows visual images to be viewed in a full screen format.

Computer Interactive:

I have not seen the term KERMIT used in this way.

Fees:

Line three, insert between for and computer the term personal. Add after the term dos "disk operating system" or the apple computer variant, the Macintosh or

word. The term software is one word. Change word refundable to refunded. Define the acronym, MTDLP.

Orientation:

Change the third sentence to this session is required to acquaint students with distance learning and such issues as access to support services.

Student Access to Course Materials:

#2. Change with to without and eliminate no monetary.

#3. Eliminate comma and use the word or. In the sentence that beings with however, eliminate at the present time or and add the after campus. The sentence beginning with Students can also - eliminate comma add and must. Eliminate and call and use calling Try and reduce the three to four day processing time. Add the term enrolment before letter to sentence starting with Students will receive.

Assignments/Exams:

Eliminate the words every week, and use the term weekly, and insert may between or and call.

Spencer Freund, Director of Media Services at California State University at Sacramento (CSUS), made the following comments :

Forgive my delay in getting back to your sooner concerning your draft proposal for Folsom Lake College Distance Learning Model.

I have read the document several times and I am somewhat confused by its format. In short, I do not feel that the document is representative of what could be called a "model." For example, there is no pedagogical curriculum design nor an academic/administrative structure or organization. I feel that your vision statement has considerable merit and, yet, this document does not suggest how technology will "meet the needs of all students with special attention afforded the underrepresented and physically challenged." I appreciate the significant number of educational technological alternatives outlined. It is my own belief that not one technology can best serve the needs of teaching/learning process. Thus, I applaud your multiple considerations. There is no discussion, however, as part of the paper, as to how will software be developed and/or procured. Again, there is no distribution operationally as to how this and a variety of other activities are to be managed. The academic governance of each institution is unique and one can assume that there will need to be several policy and procedural issues defined. If, in fact, an

entire institution is to be focused around a technology model, it assumes that the faculty will need to be properly trained as such.

Lastly, there is no discussion as to how all of this will be distributed. I realize that there is some short discussion on the circulation of videotapes and audio cassettes but enrolling and managing accessed information resources for thousands of students at one time requires much more that articulated.

Criticisms have been based on what you have forwarded me. There might be other reports and data that I might not be aware of. Should you require further clarifications, please give me a call. Good Luck!

Kathy Warriner, Curriculum Analyst for Educational Standards and Evaluation at the California Community Colleges Chancellor's Office, and **Henry Burnett**, Dean of Learning Resources at American River College made the following comments respectively:

CHANCELLOR'S OFFICE

CALIFORNIA COMMUNITY COLLEGES
1107 NINTH STREET
SACRAMENTO, CA 95814
(916) 445-8752

Memo

Date: December 23, 1993

To: Mike Rasler

From: Kathy Warriner

Subject: Draft Distance Education Model

Synopsis: Here are my comments on the draft document you sent to me November 29, 1993. Thanks for letting me review it. I have followed your suggestion, and made my comments in this separate document, so that I can FAX it to you today. I have numbered the pages to make following along easier.

Page 1/Vision statement:

I would like to suggest that access is less than perfect now, and that your vision is to " improve access to higher education for all students (not necessarily citizens) with special emphasis on (delete matriculation, which describes a specific process) those groups historically underrpresented in higher education in California including students with disabilities." These language changes incorporate "boilerplate" commonly used in postsecondary education at this time.

Mission statement: I would prefer the term "multi-media" to "multi-tech".

Introduction: institutions are accredited - courses are not. And, of course, Folsom Lake will not have an accreditition review for some time after its opening. You may wish to begin the section with a statement about instruction in the Los Rios District in general, then continue with your line 8: "...This Program will use technology etc"

My research shows a definite change from "distance learning" to "distance education" in the literature. You may want to change this throughout your document.

Line 15: to allow for nontransferable courses that may come on line soon, I would suggest changing this wording to: "...and all distance education courses *in this program* are transferable..."

Page 2/line 2: telephone only is very limited. Surely students can also use a computer network bulletin board to

"converse on-line" with faculty. When possible, I strongly suggest not tying your document to any specific technologies - they are simply changing too quickly. Your document will be dated before it is even signed. You would rather have something of value over time, I think.

Pages 2-4: I like very much this comprehensive description of the many possiblities available with the support of technology. I particularly like noting that students may not have necessary equipment for computer-linked classes. However, what about students who are not on cable? Financial aid for cable hook-up? Course available in a "center"? Also, a course might use several of these technologies at once - truly multi-media.

Page 4: Fees section you are using product names here and they need to be appropriately capitalized, e.g., WordPerfect. A short description of how certificate of completion can be obtained would provide helpful clarification. The model I am most familiar with requires the student to complete a tutorial of some type. You probably know dozens of others.

Pages 4-6: probably this lengthy walk-through of CARL is not necessary here. Just the information that an automatic registration system will be in place does the job.

Page 6/line 13: please capitalize English.

Page 6 Orientation: why not describe this as a mandatory orientation that can be fulfilled two (maybe more) ways: in person, or by using technology? My guess is that, very soon, we will see distance orientation sessions using the technology in which the class itself is offered.

Page 7: Access to course materials. This is one of those sections that is a little dependent on the current state of affairs. Librarians assure me that support materials for courses can also be scanned and delivered to remote students electronically. And there is also FAX etc. I would broaden this a bit, and leave room for new technologies.

Page 8/lines 11-13: do you really want to commit faculty to communications by mail only? What about network, EBB etc?

Page 8/last paragraph: expand this to include other technologies.

Page 10 (first survey page) Age line is not consistent with MIS data collection elements. What you need to use is: under 19; 20 - 24; etc.

In the lead-in for the numbered questions: I am not sure students will understand what a "non-distance education course" is. How about "traditional classroom courses"?

You might want to substitute "frequently" for "always" and "rarely" for "never".

Questions 7-9 are confusing. Perhaps if 10 were the first, with a listing of possible technical problems to follow, it would be easier to follow. Incidentally, research seems to show that the single most important feature for distance courses that have audio, is audio quality. This does not apply, of course, to computer linked courses. Soon, however, we will have voice, text and image directly to a PC (like picture-tel).

Questions 11-13 need some sort of lead-in statement. There is no transition.

Questions 14-18 need to be rewritten. What is it you want to know? Do you really care how students "feel" about a distance education class?

Action requested/date needed:
Information for your use. Please call if I can provide clarification. I have the materials from an October 1993 videoconference on evaluation of distance education (Austin Community College) that include a couple of evaluation questionnaires. I would be happy to make a copy for you. Currently they are on loan to the Northern California Telecommunications Consortia, but I will get them back on January 6.

MERRY CHRISTMAS AND GOOD LUCK WITH THE PhD (almost there).

file:RSLR93A

American River College
4700 College Oak Drive Sacramento, CA 95841 916/484-8011

January 24, 1994

Mike Rasler
10534 Coloma Road
Rancho Cordova, CA 95670

Dear Mike:

In reviewing your Folsom Lake model, I have these following suggestions that you might address in revising your material:

- In the introduction section, the model represents somewhat of a checklist of distance learning technology. What learning styles are these technologies addressing and why should a student select one delivery system over another?

- The model currently addresses existing technology but does not anticipate future technology such as "the national information highway, fiber technology and cellular technology".

- High touch strategies such as study groups, group/peer interaction and structured peer tutoring might be incorporated in the model to insure student retention and interaction within the class.

- In presenting the distance learning program, how will decisions be made from a management perspective to initiate distance learning in one mode versus another? What criteria will be used to determine the mix of methodology, flexible scheduling, and specific technologies?

- The phone registation section has extensive detail that perhaps should appear in an appendix rather than in the main description of the model.

- What provisions will be made for students to access library services or student personnel services?

- I suggest using the educational master plan from Folsom Lake College to develop a list of courses which could be offered in the distance learning mode. This strategy would suggest a more detailed context for discussing the distance learning model.

- A stylistic note: Stating the model in the third person rather than the first person will formalize the presentation of the material.

I hope these suggestions will be helpful to you in revising your materials. Your work will be invaluable as Folsom Lake College becomes a reality. Please keep me informed of the progress with your project. I know that Dick Beymer, Assistant Chancellor, Educational Services, will be very interested in the development of your distance learning model.

Cordially,

Henry Burnett

Henry Burnett
Dean, Learning Resources

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APPENDIX F

Questions for Comparison

The following questions were used to interview the persons identified in procedure number seven.

1. What role do you play in the oversight/implementation of multi-media and distance learning instruction?

2. What does UCD currently offer students in regard to multi-tech distance learning courses.

3. What plan does the university have to collaborate with FLC in the next five years, and how do you propose to bring them to fruition?

4. Do you have current student and faculty evaluation forms for the distance learning courses?

Manager of Instruction and Media Support, UCD

Charles Raley, the Manager of Instruction and Media Support Information Resources Department for UCD was interviewed. A series of four questions included in Appendix G were posed to Charles on November 14, 1993 and his responses were as follows:

1. I am directly responsible for multimedia on campus. We now have two FTE in the development of multimedia projects. Approximately 50% of the multimedia projects are in the conversion of old slide/tape productions that are viewed or listened

to in specially equipped carousels and the other 50% is consumed in the development of new media from scratch, with faculty. In regards to distance education, I represent the information technology component of distance learning. I find myself pushing faculty into distance learning, since historically the UC system has not had much interest in distance learning.

2. The only distance learning experience that the campus has to date is in the area of engineering. We offer a full doctorate program in engineering that has been delivered to Lawrence Livermore Labs, Sandia National Labs, McClellan Air Force Base, and Aeroject in Rancho Cordova. For one reason or another, the only client we now serve in this program is Lawarence Livermore Labs. This service is provided as one-way video and two way audio via microwave link. We do have ITFS signal delivered in the Sacramento area via Pack West and look forward to future use of one of these signals by university extension.

3. Mike, there has been much talk at the UC system wide of a general commitment to community colleges. We now have a sort of reverse distance

learning with SCC, where they provide remedial education here on campus. I have been working with Jim Baker at CRC on a couple of special projects relating to usage of the CRC satellite uplink facility. I recently met with Claire Daughtry of the UCD Engineering Department. Jim Baker and another fellow from FLC regarding undergraduate engineering courses being considered for delivery of undergraduate courses. However, this adds a level of complexity (lab support) that the UC system has not been interested in. I personally think that UCD should pursue the delivery of undergraduate courses and work with community colleges to provide some labs and classroom as required.

4. UCD school of engineering uses student evaluation forms, but do not have faculty evaluation forms. By the way, I attended a seminar recently in Portland, Oregon where one of the presentations was on course evaluation. If you want, I have the names and addresses of the presenters.

Raley suggested a visit to the Center for Advanced Information Technology (CAIT). The manager of CAIT, Jennifer Koester explained CAIT's operation. Both

Ralev and Koester offered their support for the MTDLP in FLC. UCD is developing infrastructure with the community college system with a symbiotic relationship in mind.

Engineering Instructional Television Program, UCD

The UCD engineering department was visited. This institution was recommended by Michael Tomaschak, the director of multimedia computer global network in Elyria, Ohio.

Claire Daughtry, Program Manager for the College of Engineering Instructional Television Program (ITV) at UCD was interviewed on November 2, 1993. Her responses were are follows:

1. My role is as manager of the ITV Program through the College of Engineering Dean's Office. Our main subscriber is Lawrence Livermore National Laboratory. Sandia National Laboratory is also a subscriber on a smaller scale. We have recently begun broadcasting though National Technological University based in Fort Collins, Colorado. This quarter (fall 1993) we are broadcasting to 17 sites around the country. I determine what courses will be televised to all sites. The program is having budget problems because the ITV program is not funded by the university. The

program remains viable only be offering programs and some of the current class offerings are very small sometimes only having three student in a class.

2. We don't have that ability at this time, but I am trying to get the money via a grant to install a computer in each TV classroom so that the instructor can log in to his computer and show whatever it is he/she wants to demonstrate to the live class as well as to videotape and to the remote sites.

3. I know of no firm plans for future collaboration with FLC.

4. We have student evaluation forms that are used mostly to let us know if there are any problems. We send them out after the first two weeks of classes and pass them on to faculty and camera operators.

Claire also provided the following written materials on UCDs Instructional Television Program.

The UC Davis ITV program is an outreach program intended to help fulfill the universities mission of teaching, research, and public service. The ITV program is a non-profit service that is separate and

independent from the university graduate and extension offices.

ITV allows off-campus students to take classes at their work site without having to commute to the Davis campus, saving them three to four hours per class in travel-time. Many practicing engineers who take ITV classes would not be able to attend regular UCD classes.

The ITV classes are broadcast live during the work day. Typically, full-time professional engineers enroll in one course per quarter; thus, a Master's degree program takes approximately three years and a doctoral degree program takes approximately five to six years to complete. The key to the success of the students is their obtaining support from their supervisor, site coordinator, graduate advisor, instructor and the other ITV students.

Selected UCD classes are held in specially equipped television studios and transmitted to off-site locations by satellite transmission, wireless cable, and tape delay. The UCD-ITV system is unique because students at off-campus sites can interact with the campus classroom. A talk-back system allows off-campus students to ask questions, give answers, and participate in classroom discussions. Instructors and

students can interact with each other, as in a regular classroom setting.

When a student registers for a course through the UCD-ITV program, they are required to pay the standard UCD tuition fees for that course. In addition, the site is charged a per course charge of approximately $2,500 by the ITV office to cover the costs of providing the broadcast and support services to your site.

Registration procedures are very detailed and include the following: (a) applications, (b) payment of fees, (c) enrollment, (d) withdrawal from courses, (e) textbooks, (f) assignments, (g) examinations, and (h) other pertinent information.

Current sites for ITV transmissions include (a) Aerojet Corporation, (b) McClellan Air Force Base, (c) the Lawrence Livermore National Laboratory, and (d) the Sandia National Laboratories in Livermore. The UCD ITV program is also one of the 42 prestigious universities offering courses nationwide via NTU.

The increasing demands of society to shift from the defense of the population against a hostile aggressor to more of a peace time economy will bring an even greater need for DL at the worksite.

APPENDIX G

Final Draft of MTDLP

FOLSOM LAKE COLLEGE

Multi-Tech Distance Learning Program

VISION: To continue to offer access to higher education for all students with special emphasis on the underrepresented and physically challenged student.

MISSION: To develop FLC as a non-traditional model of higher education that will include a multi-media distance learning focus.

Introduction

The Los Rios Community College District (LRCCD) has stressed its continued commitment to the use of technology due to its role in the work place. The Multi-Tech Distance Learning Program (MTDLP) is presented as another option for students who generally desired to participate in higher education, but due to their personal circumstances have not been able to enroll.

Folsom Lake College's MTDLP offers a model or paradigm accommodating varying student needs.

Students can take many of Folsom's courses through (a) print package, (b) audio/videocassette, (c) interactive television, (d) computer conference, (e) conference call, (f) video conference, and

(g) interactive computers. They are designed to meet the needs of all students, with special attention given to the underrepresented and physically challenged. This program will use technology for delivery of instruction and services as well as challenge educational traditions in format and delivery modalities. Courses offered in these formats are equivalent to the same courses offered in a classroom setting and are transferable. Thus, the distance learning (DL) courses can be applied towards the earning of a two-year degree, and all DL courses in this program are transferable to four year institutions. In every class, students have the opportunity to talk to their instructors during specified office hours. Students can contact their instructors via telephone, e-mail, fax, and converse on-line.

Messages can also be left with the distance learning office.

Distance learning is your educational alternative. The following offers additional information on course formats students may choose.

Print Based -

These classes allow students to complete assignments during their own weekly time

schedule. Instruction is provided through textbooks, study guides and written communication with instructors. Teleconferenced review sessions are available for some classes.

Audio/Videocassette-

These courses are similar to the above print classes, but include supplementary information on audio/videocassettes to help students who are physically challenged. The tapes are mailed to the student at no additional cost. However, if the student fails to return the tapes, there is a charge.

Television -

A wide variety of FLC courses will be broadcast every semester on Sacramento Cable channel 21, thus students can take these classes in the comfort of their home's. The design of the course will be live "real time" and interactive with a touch tone telephone. If students miss a lesson, they may reserve that lessons tape through FLC's Library/Media Department.

Computer Conference -

Students can use a modem to connect their computer to the mainframe computer or a bulletin board and have access to assignments, fellow students, and the instructor. Students without their own computers may take these classes from any of FLC's computer lab sites. Informative orientations will be held for these innovative courses.

Conference Call -

These classes are "live" audio conference connecting students from many locations by telephone. The instructor and students become a "class without walls" brought together by telephone lines. Students may take the class from their own phone or from the nearest conference site. Conference call classes link Folsom students with other students all over the world.

Video Conference -

Students may join together to take distance education classes at selected locations in the Sacramento area in especially equipped classrooms which are electronically attached to the location

of the instructor, using video technology, with cameras and monitors. A special camera allows visual images to be viewed in a full screen format.

Computer Interactive -

This class is taken with a computer application at home or at the office. All you need is your own computer system (including modem) and software (kermit). It also will be live "real time" and interactive.

LRCCD is currently installing Electronic classrooms in conjunction with the associated return microwave transmission equipment. Consequently, students will be soon be able to access courses at a variety of centers, including FLC.

Fees

The fees are the same as for traditional classes. Students taking computer classes can check out a modem if they have a certificate of completion for personal computer disc operating system or the Macintosh, processing software such as WordPerfect or Word and can demonstrate computer proficiency by passing a tutorial (Contact the DL Office). The media center will require a $25 deposit that will be refunded. Students who need

assistance in subscribing to Sacramento Cable can contact the financial aid office.

Registration

Any student may register for the MTDLP via (a) phone, (b) mail, (c) in person, or by touchtone phone using the computer assisted registration line (CARL). Students can call CARL seven days a week between the hours of 6:00 a.m. and 9:00 p.m. This system will use telephone data entry and responses which will register the student in a matter of minutes. If the course is full, the student will be so notified.

CARL will use a touch-tone registration worksheet. The student will use only a touch-tone telephone to make entries. A voice will guide you after each entry. Press an entire sequence when asked to do so.

First, call the system number which will be a dedicated seven digit number.

Second, enter the six-digit action code followed (listed in the class schedule) by a pound sign (#).

Third, enter student I.D. number which will be the student's social security number. If a continuing student or student who has registered for a Folsom Lake credit class the VOICE RESPONSE will spell the students last name. If the name is not the student's name, the information may have been entered the incorrectly.

Press the Star key (*), then the Pound key (#), and repeat step three. If the name is still incorrect, call the Registration Office.

Fourth, enter student request for the class. For example, if the student wants to register for a traditional health education class . The first number will be 2 followed by the star (*) the section number (1824) followed by the pound sign (#). The student who wants to register for health education utilizing the print based format will use section number 1825; audio/videocassette class, section number 1826; television, section number 1827; computer conference, section number 1828; conference call, section number 1829; video conference, section number 1830; computer interactive, section number 1831. In order to drop a health education class, the first number will be 3 followed by the star (*) 1824 followed by the section number. A reading of the students class registration can be listed to by pressing number five followed by the number sign (#).

Fifth, terminate the call by pushing the number nine followed by the number sign (#).

In time CARL registration will be applied to all classes with the noticeable exception being courses such as english, reading and math classes which require

a placement examination. CARL will not be an option for those classes.

However, currently the CARL registration procedure will be applied **first** only to classes in the Multi-Tech Distance Learning Program.

Orientation

FLC will require first time students enrolled in distance learning courses to attend a mandatory orientation session. This session is required to acquaint students with distance learning and such issues as access to support services. The orientation requirement can be met in a variety of ways. Students can choose attending an on campus orientation session, or check out an audio or videotape from the distance learning office. Eventually, distance orientation sessions will use the technology used to deliver the class.

Student Access To Course Materials

FLC's distance learners can obtain a variety of course materials with relative ease. In order to enhance student access,

1. Videotapes will be made available at community libraries or other off-campus sites (Block Buster Video) to accommodate students who cannot receive a broadcast or who miss broadcasts.

2. Audiocassettes will be sent to students without monetary charge or with a modest use fee.

3. Learning equipment such as modems will be available through either rental agreements or at a reduced price at the DL office. Thus, support materials for courses can be scanned and delivered to remote students electronically.

Students must purchase course materials from the Folsom Lake Campus or eventually any of the colleges in the Los Rios Community College District. However, until a book store is built on campus, the ARC bookstore is the only place to get books and course material packets! The ARC bookstore is located at 4700 College Oak Drive, Sacramento, CA 95841. Regular bookstore hours are 9am to 2pm, however, they vary during the semester. For information call 484-8107. Students can also order by phone, and must allow at least 5 days for delivery calling 484-8107. Books may be ordered by phone and charged to Mastercard or VISA. Students must identify themselves as a Folsom Lake student taking a distance learning course. Books will be shipped UPS. COD arrangements may also be made. There are additional charges for shipping. Students may also order their books by phone and mail in a check

for the amount quoted by the bookstore. The order will be filled when your check arrives.

Students will receive a letter and calendar of important dates in the mail from the Folsom Lake instructor at the beginning of the semester.

Assignments/Exams

Required assignments will be forwarded according to the due dates noted on the calendar. Instructors will advise students on the method he/she prefers assignments to be sent.

Examinations will be taken either in person, with a proctor, or over the computer.

The instructor may be called contacted weekly during office hours or may call the Distance Learning Office 24 hours a day to leave a message.

TOUCH-TONE REGISTRATION
WORKSHEET
SPRING, 1995

Use only a touch-tone telephone to make entries. A voice will guide you after each entry. Press an entire sequence when asked to do so.

1. **Call The System Number**

   4 8 4 8 1 0 6

2. **Enter The Action Code**

   7 0 6 9 3 2 #

3. **Enter Your Student ID Number**
   (usually your social security number)

   ___ ___ ___ ___ ___ ___ ___ ___ ___ #

   After you have entered your student identification number, the VOICE RESPONSE will spell your last name. If the name is not your name, you may have entered the information incorrectly. Press the Star key (*), then the Pound key (#), and repeat step 3. If the name is still incorrect, call the Registration Office, 484-8107.

4. **Enter Your Requests** (Section Number)

   2 * ___ ___ ___ ___ #

   To Drop (Section Number)

   3 * ___ ___ ___ ___ #

   To Hear a Reading of your class schedule

   5 #

5. **Terminate Call**

   9 #

YOU CAN CALL CARL 7 DAYS A WEEK!

Folsom Lake College

Distance Learning (DL)
Evaluation Forms

MTDLP SURVEY

Please take the time to fill out this evaluation. Your comments are valuable to us as we seek to improve/strengthen the MTDLP at FLC.

Course: _____

Sex: MALE_____ FEMALE_____

AGE: UNDER 19___ 20-24___ 25-29___ 30-34___ 35-39___

40-44___ 45-49___ 50-54___ 55+___

CLASS STANDING: FRESHMAN___ SOPHOMORE___ JUNIOR___

SENIOR___ GRADUATE___ OTHER___

COLLEGE: _____ MAJOR:_____

NUMBER OF COURSES TAKEN VIA DISTANCE LEARNING
(INCLUDING THIS ONE)

1____ 2____ 3____ 4____ 5 or more____

PLEASE READ EACH ITEM BELOW. CIRCLE THE RESPONSE YOU FEEL IS THE MOST APPROPRIATE ON THE SCALE PROVIDED TO THE RIGHT OF THE QUESTION.

Rarely Occasionally Frequently

In my traditional classroom courses:

1. I participate in class discussion:

1 2 3 4 5

2. I interact with other students in class:

1 2 3 4 5

3. I interact with the instructor:

1 2 3 4 5

In my distance learning courses,

4. I participate in class discussion

1 2 3 4 5

5. I interact with other students in class

1 2 3 4 5

6. I interact with the instructor

1 2 3 4 5

With regard to what I learned from this class, I would rate the following items as distracting.

7. Technical problems interfered with my satisfaction with the course.

1 2 3 4 5

8. The class was delayed in starting, due to technical problems.

1 2 3 4 5

9. The audio quality was poor.

1 2 3 4 5

10. The video quality was poor.

1 2 3 4 5

With regard to what I learned from this class, I would rate the following items as:

	Not helpful	Useful			Very helpful
11. The videos	1	2	3	4	5
12. The textbook(s	1	2	3	4	5

13. The supplemental readings	1	2	3	4	5

Agree Disagree

14. The instructor involved students from different locations in class discussions	1	2	3	4	5
15. I found the class intellectually stimulating and enjoyed the interactions with DL students	1	2	3	4	5
16. I would not have been able to take this course if had not been offered in the DL format	1	2	3	4	5

My experience in this course was such that:

17. I would take another DL course	YES	NO
18. I will take another DL course	YES	NO
19. I will recommend that other students take a DL course	YES	NO

I would like to see the following courses offered in a DL modality

_____

_____

_____

Additional Comments:

_____

_____

_____

_____

_____

BIOGRAPHICAL SKETCH OF STUDENT

Mike Rasler was born August 8, 1946 in Vallejo, California. According to his parents, he was very inquisitive. If there was an electrical outlet, Mike would stick things in it to see what would happen. His fifth grade teacher Mrs. Beckmeyer said that he could be President of the United States if he wanted to.

He was raised in a household that always stressed the importance of education. This can explain why he was the first in his family to graduate from college.

His postsecondary education started with his attending Vallejo Jr. College. He then transferred with an Associate of Arts degree to Sacramento State College where he finished his Bachelors of Arts degree with a major in Health Science and a minor in Biological Science. He then married Carol Lee Smith who worked at McClellan Air Force Base in Sacramento, California. In 1971 Mike finished his Master of Arts degree in Health Science from California State University, Sacramento.

Mike began his new family and teaching career in 1970. Mike and Carol had two children Brian and Jennifer. He taught at the secondary level for 24 years and was then accepted to the Nova Southeastern

University doctoral program for higher education and graduated June 30, 1994 with an EdD degree. Currently, he is an adjunct faculty for the Los Rios Community College District. Mike has received awards that include certificates for meritorious service, teacher of the year, (seven times), and he was honored nationally in 1992 and 1994. Mike has always tried to be:

A TEACHER WHO TAKES A HAND

OPENS A MIND,

AND TOUCHES A HEART!

As a student in the Programs for Higher Education at Nova Southeastern University, I do give permission to Nova Southeastern University to distribute copies of this Major Applied Research Project on request from interested parties. It is my understanding that Nova Southeastern University will not charge for this dissemination other than to cover the costs of duplicating, handling, and mailing of the materials.

2/24/94 (date)

M. Rasler (student's signature)

I certify that I have read and am willing to sponsor this Major Applied Research Project submitted by Michael Lorence Rasler. In my opinion it conforms to acceptable standards and is fully adequate in scope and quality as a Major Applied Research Project for the degree of Doctor of Education at Nova Southeastern University.

3/24/94 (date)

Richard T. Rees, EdD
MARP advisor

I certify that I have read this Major Applied Research Project and in my opinion it conforms to acceptable standards for a Major Applied Research Project for the degree of Doctor of Education at Nova Southeastern University.

4/7/94 (date)

Leslie Sue

Leslie Sue, EdD
Local Committee Member

This Major Applied Research Project was submitted to the Central Staff of the Programs for Higher Education of Nova Southeastern University and is acceptable as partial fulfillment of the requirements for the degree of Doctor of Education.

6/8/94 (date)

Peter K. Mills, EdD
Central Staff Committee Member